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PHILADELPHIA

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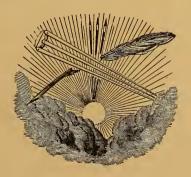
AN ILLUSTRATED MONTHLY JOURNAL,

### DEVOTED TO PHOTOGRAPHY.

EDITED BY EDWARD L. WILSON.

THE OFFICIAL ORGAN OF THE NATIONAL PHOTOGRAPHIC ASSOCIATION OF THE UNITED STATES.

January, 1878.



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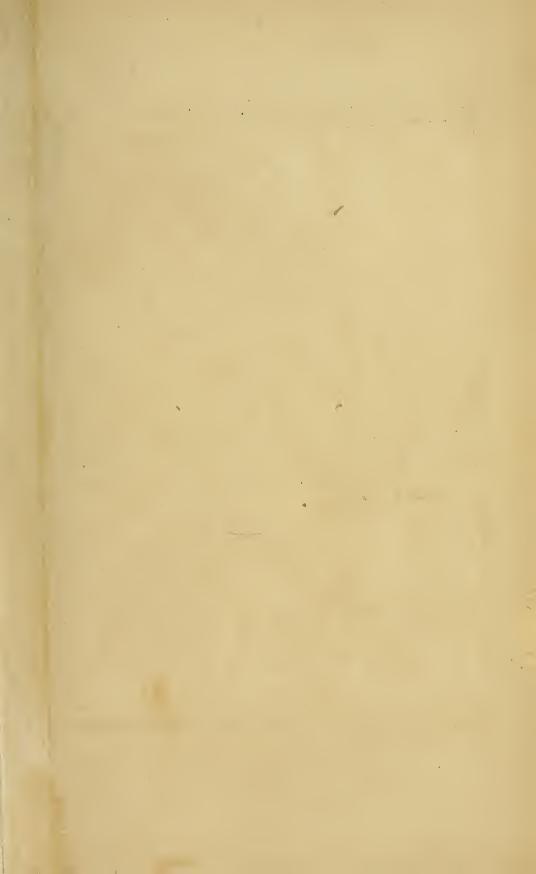


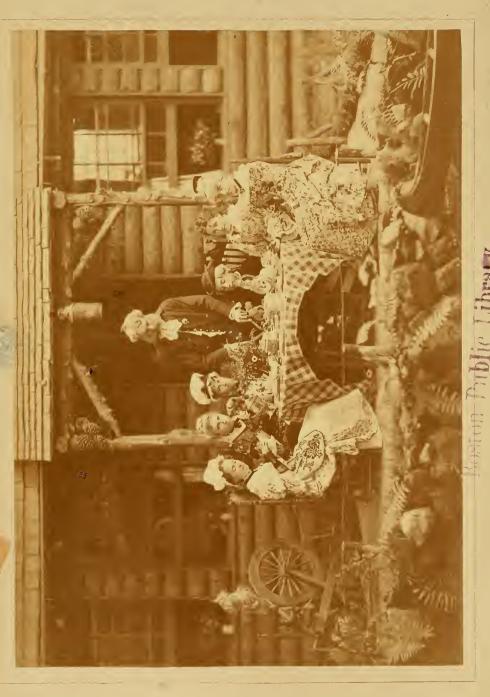
#### H. HOWSON,

Engineer and Solicitor of Patents.

#### c. Howson,

Attorney at Law, and Counsel in Patent Cases.





CHRISTMAS GATHERING IN YE OLDEN TIME.

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# PHOTOGRAPHER.

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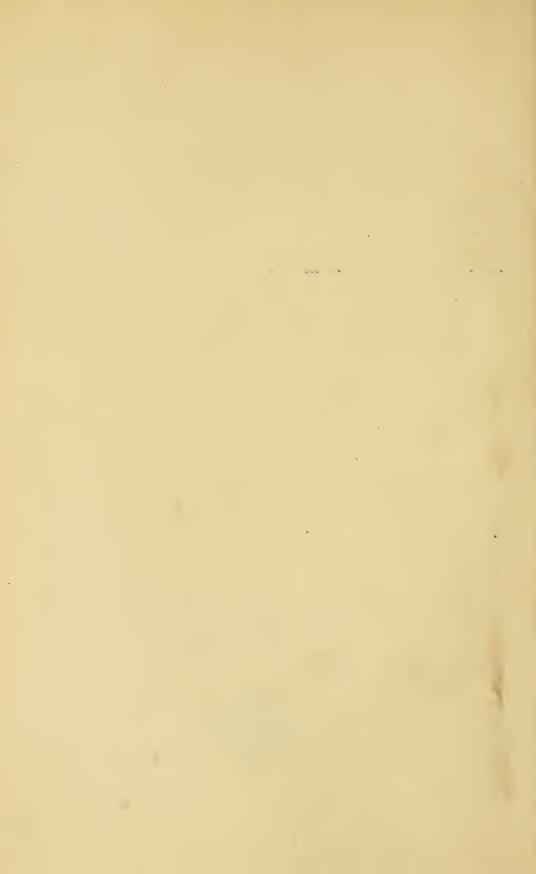
  March.—Prize Portrait. Negatives by J. Landy,
- Cincinnati, Ohio.

  April.—Gold Medal Prize Portrait. Negatives by G. M. Elton, Palmyra, N. Y.
- May.—Landscape Study. Negatives by S. R. STODDARD, Glens Falls, N. Y.
- June.—Prize Portrait. Negatives by D. H. An-DERSON, Richmond, Va.

- July.—Prize Promenade. Negatives by John A. Торр, Sacramento, Cal.
- August.—Prize Cabinet. Negatives by Bradley & Rulofson, San Francisco, Cal.
- September.—"The Hunter's Dream." Negatives by Daniel Price, Napa, Cal.
- October.—"Evening at Home." Negatives by LEON VAN Loo, Cincinnati, Obio.
- November.—"The Faggot Gatherer." Negatives by Cook Ely, Oshkosh, Wis.
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#### JANUARY, 1878.

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#### OUR FIFTEENTH YEAR.

WE enter it with this issue, but notwithstanding our age we have endeavored to keep up a youthful appearance, and appeal to the pages which follow as proof of our success in that effort.

We have arranged some choice dishes for our patrons of the new year, among which are notably a series of papers on "The Outlines of Chemistry," by Professor McIntire, of Lafayette College, and Mr. Gihon's "Scraps," all of which we trust will prove very helpful. Added are words always fresh from our unrivalled staff of old correspondents and contributors, together with such humble soundings as from time to time we feel called upon to give from our own voice.

We shall go on striving to keep up a good stock of reading matter and news from all the world for you, and hope to show no signs of age or deterioration. We never felt more youthful, or vigorous, or hopeful, and trust to be able to impart more and more of hopefulness and cheerfulness to our patrons.

Do not forget as you look through our pages to carefully read the advertising pages also. They are always full of useful information, and this month there are several new and fresh ones.

We believe the dull times are now brokenbacked, and, though it may seem cowardly, we should get on top of them, or push them overboard, and go ahead!

We wish you all a very Happy New Year.

#### OUR GOLD MEDAL PRIZE OFFER.

PLEASE to remember that January 20th is the limit of time when we can receive the negatives sent for competition for our gold medal prize offer. We again call the attention of our readers to that offer made on page 307 of our last volume, and trust that those who are ready will send their negatives at once, and that none will be late. It will be for the jury to decide whether or not the usual three days' grace will be given, but we trust that no party will ask for it, or expect it. We have given abundance of time, and hope for a large and fierce competition. Of course there can be only one successful party, and there may be several disappointed. But we shall at least select some of the best pictures for our use as embellishments for our magazine, and will give all who wish it opportunity to see some prints from the whole series; of this more anon. Our only purpose now in mentioning the matter is, to urge you not to be behindhand. Full information concerning the competition will be given in our next number.

A correspondent suggests that we offer a choice of \$50 cash or a medal. We gladly do it.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

A LL human knowledge may conveniently be divided into logic or mental philosophy, ethics or moral philosophy, and physics or natural philosophy. Physics or natural philosophy may itself be divided into natural history and chemistry.

Chemistry, in a feeble way, existed as far back certainly as the early Egyptian nation, perhaps even in the earlier Babylonian empire. The cupidity of the middle ages transformed it into alchemy, from which hardly earlier than the nineteenth century it burst its bonds, and became the modern chemistry, so that as now known it is quite recent; indeed, the last fifteen or twenty years have witnessed a great revolution in its landmarks, a revolution so extremely modern that there are many books recently published, and still in every-day use, that do not make use of it, the change from the "old system" to the "new system" involving a new nomenclature.

The entire field of chemistry may be divided into general and analytical chemistry, whilst general chemistry may be further divided into theoretical and practical chemistry; the possibility of understanding the latter division resting mainly upon the former, it may be of some consequence to take with the theory some care.

#### I. THEORETICAL CHEMISTRY.

An element is a substance that can by no means, mechanical or physical, be divided into other substances; it is composed entirely of one thing. Chemistry has up to the present time recognized sixty-four such substances, while there are rumors of new discoveries. These elements, besides being alone in a free state, may occur in the presence of each other in two ways, mechanically and chemically, so that we may have mechanical mixtures or chemical compounds. In mechanical mixtures the constituents may, perhaps, be recognized, if not with the naked eye, by means of a microscope. They may be separated by mechanical means, while the mixture resembles each of them to a greater or less extent; but in a chemical compound the distinctive features of the

constituents are lost, while in their place the compound has distinctive features of its own. The constituents can only be separated by physical means (light, heat, electricity, etc.). For example, if sulphur and iron-filings be mixed together, each may be recognized in the mixture and easily separated; but if heat be applied, an action takes place, a new substance is formed, neither sulphur nor iron can be seen nor mechanically separated. In mechanical mixtures it is evident that the constituents can be mixed in any proportions whatever. But with chemical compounds the case is different. Take, for instance, the compound called olefian gas. An analysis would give 85.7 per cent. of carbon and 14.3 per cent. of hydrogen; that is, 85.7 being to 14.3 as 6 to 1, 6 parts of carbon and 1 part of hydrogen. Take, also, marsh gas. We would find 75 per cent. of carbon and 25 per cent. of hydrogen, or 3 parts of carbon and 1 part of hydrogen. Again, for carbon monoxide (the poisonous gas given off by burning charcoal fires), we would have 6 parts of carbon and 8 of oxygen; and for carbon dioxide (carbonic acid gas), 6 parts of carbon and 16 parts of oxygen. Finally, take water, and it would give 1 part of hydrogen and 8 of oxygen, arranging all these in a tabular form:

	(	Carbon.	Hydrogen.	Oxygen.
Olefian Gas, .		6	1	
Marsh Gas, .		3	1	
Carbon Monoxide,		6		8
Carbon Dioxide,		6		16
Water			1	8

Here is something noticeable: in the column headed carbon, there is a three and three sixes; in the hydrogen column, all ones; and in the oxygen column, two eights and a sixteen. There is evidently some cause for this. Further analyses of other substances would give similar results, so that the fact expressed as a law (and called the law of multiple proportions) would be: If two elements combine to form different chemical compounds, and we consider the same amount of one element, the amounts of the other element in the various compounds will always be one number, or multiples of that number.

After deciding upon this, the next question according to human nature would be,

"Why is this so?" To answer this question, the atomic theory was made use of. An atom is the smallest amount of an element that could be reached by division. Each of these particles, these atoms, has a definite weight, always the same for the same substance. By the law of multiple proportions it was shown that a certain number could be selected for each element, so that when elements combined, their weights would always be in proportion to these numbers or multiples of them. The reason was supposed to be that chemical action takes place between atoms. For instance, it was supposed that when two elements combined, one atom of the one united with one, two, or more atoms of the other, as the case might be. This being the case, the relative weights of the atoms could be found; for, if two elements united atom for atom, and by analysis it was found that the weight of one was to the weight of the other, say as one to eight, then the latter was eight times heavier than the former. In this way the weight of an atom of one element could be found with respect to the weight of an atom of another, how many times heavier or lighter the atoms of one element is than another. It would be evident that one and the same element should be used as the standard to refer the weights of the others to.

Hydrogen was selected as the base, and its atomic weight made one. It was selected because it was lighter than any other element. Any one of the rest would have answered, although not as well. But, having decided on all this, difficulties would at the very first step occur. If one should try to determine the atomic weight of oxygen, he would take the substances composed of hydrogen and oxygen; he would find two of these. In one the hydrogen would be to the oxygen as one to eight, in the other as one to sixteen. He might say that in the one, water, where the proportion is as one to eight, that each atom of hydrogen was united to an atom of oxygen; the atomic weight of oxygen would then be eight, and in the compound, when there was one part of hydrogen to sixteen of oxygen, each atom of hydrogen was united with two of oxygen; or he could say, with as much right, that in the latter one atom of hydrogen was united

with one of oxygen, which would make the atomic weight of oxygen sixteen, while in water, when the proportion is as one to eight, there would be two of hydrogen united to one of oxygen, and he would have two numbers, eight and sixteen, one of which would be the atomic weight of oxygen, but which one he would be unable to judge with certainty. Then there was a new law demonstrated (by what experiments and reasoning it is unnecessary to state here), that all gases contained in the same space, or volume, the same number of molecules. By molecule is meant the smallest part of a substance that can exist, and still contain the characteristics of the substance. If water would be divided as far as it could be, and still be water, that would be a molecule of water; this molecule, however, could be divided into hydrogen and oxygen, but then it would be no longer a molecule. The number of hydrogen atoms, either one or two, uniting with one atom of oxygen, would form one molecule of water. It is also supposed that an atom of an element could remain uncombined only for a short space of time; if there is nothing else present that it can unite with, it will unite with other atoms of itself, and thus form a molecule of that element. So when there is free hydrogen, the atoms are united among themselves to form molecules of hydrogen in the same way with oxygen; but when these two gases are brought together in the right proportions, and an electric spark passed through them, the molecules of hydrogen will be broken up into atoms of hydrogen; the molecules of oxygen will be broken up into atoms of oxygen; the atoms of hydrogen will unite with the atoms of oxygen to form molecules of water. But, to return to the subject, it has been proved then that in the same volume of every gas, element or not, there are the same number of molecules; this being the case, every substance that can be made into a gas, its molecular weight may easily be determined, for if the same number of molecules are in the same volume of every gas, the weight of the molecules of two gases must be in proportion to the weights of equal volumes. Take oxygen for an example. As has been before shown, the atomic weight of oxygen must either be eight or

sixteen; and we find, by experiment, that a certain volume of hydrogen weighs 5.59 grains, and the same volume of oxygen weighs 89.25 grains, or is 15.97 heavier, which is so near 16 that it conclusively proves 16 to be the atomic weight of oxygen. (If instruments for weighing could be made perfectly accurate, and man could work perfectly accurate, there would be no difference between the two weights.) So we see where a substance can be obtained in a gaseous form, the determination of its atomic and molecular weights is comparatively easy; but when the substance cannot be obtained in a gaseous form, the determination is more difficult, and other means must be made use of. It is not necessary to go into them here; enough has been said to explain the meaning and force of atomic and molecular weights. These weights have been determined for all of the elements, to which also, for the sake of expedition and brevity, symbols have been given, consisting of the first letter, or of two letters, of the Latin name of the element.

## LIST OF ELEMENTS, WITH THEIR ATOMIC WEIGHTS AND SYMBOLS.

Ele	me	nt.				Sy	mbol.	omic Wt.
Aluminum							Al.	. 27.4
Antimony (	$L_{i}$	atir	ı,S	tib	iur	n),	Sb.	. 122.
Arsenic,							As.	. 75.
Barium,							Ba.	. 137.
Bismuth, .							Bi.	. 210.
Boron,							В.	. 11.
Bromine, .							Br.	. 80.
Cadmium,							Cd.	. 112.
Caesium, .							Cs.	. 133.
Calcium,							Ca.	. 40.
Carbon,							C.	. 12.
Cerium,							Ce.	. 92.
Chlorine,							Cl.	. 35.5
Chromium,							Cr.	. 52.4
Cobalt, .							Co.	. 59.
Columbium	ι,						Cb.	. 94.
Copper (Cu							Cu.	. 63.4
Davium,								
Didymium,							D.	. 96.
Erbium,							E.	. 113.7
Fluorine,							F.	. 19.
Gallium,							Ga.	
Glucium,							Gl.	. 9.4
Gold (Auru							Au.	. 197.

Element.	Symbol.	Atomic Wt.
Hydrogen,	. H.	1.
Indium,	. In.	113.7
Iodine,	. I.	127.
Iridium,	. Ir.	198.
Iridium,	. Fe.	56.
Lanthanum,	. La.	92.5
Lanthanum, Lead (Plumbum),	. Pb.	207.
Lithium,	. Li.	7.
Lithium,	. Mg.	24.
Manganese,	. Mn.	55.
Mercury (Hydrargyrum)	), Hg.	200.
	. Mo.	95.8
Nickel,	. Ni.	59.
Nitrogen,	. N.	14.
Osmium,	. Os.	199.2
Oxygen,	. O.	16.
Oxygen,	. Pd.	106.6
Phosphorus,	. P.	31.
Platinum,	. Pt.	197.4
Potassium (Kalium), .	. K.	39.1
Rhodium,	. Ro.	104.4
Rubidium,	. Rb.	85.4
Ruthenium,	. Ru.	104.4
Ruthenium, Selenium,	. Se.	79.4
Silicon,	. Si.	28.
Silver (Argentum), .	. Ag.	108.
Sodium (Natrium), .	. Na.	23.
Strontium,	. Sr.	87.5
Sulphur,	. S.	32.
Tantalum,	. Ta.	182.
	. Te.	128.
Thallium,	. Tl.	204.
Thorium, Tin (Stannum),	. Th.	231.
Tin (Stannum),	. Sn.	118.
Titanium,	. Ti.	50.
Tungsten (Wolfram), .	. W.	184.
Uranium,	. U.	240.
Vanadium,	. V.	01.0
	. Ү.	61.7
Zinc,	. Zn.	65.
Zirconium,	. Zr.	89.6
Zirconium, (To be contin	ued.)	

# A TIME TO READ.

SINCE we have chosen for ourselves the work of supplying photographers with literature, and everybody knows it, we can hardly be accused of a breach of good taste in urging upon our readers the importance of giving more attention to the cultivation of information pertaining to the practice of

their art. We do feel that there is a great deficiency in this direction, and we are prompted to call it to mind again by a letter received from one of our subscribers and patrons, bringing very forcibly to our minds the advantages of reading. This letter comes to us from one of the oldest and best-known stockdealers in our profession, Mr. Benjamin French, of Boston, who says: "I have always recommended your journal, and shall continue to do so. I have obtained a good many subscribers for you, and I advise those who can afford it to take all of the journals, as it will not harm them. I take pleasure in reading them all myself, and enjoy the knowledge that artists take them, as they are a good thing for all; and if they were only read half as much by photographers as I read them, they would be largely benefited. I often give copies of your magazine away, when I find a photographer who does not receive it, hoping thus to induce subscriptions." Here is a testimonial that is of value, since it comes from one old and experienced in 'the business, and who has learned to look at things with a practical eye.

Another evidence of the advantages of study comes to us from a working photographer, whose letter follows.

DEAR SIR: With the thermometer at sixty degrees, and a continued drizzling rain accompanied with dull leaden sky, our thoughts, for the time being, naturally drift to our books. This becomes the case more especially at a time of the year when the change of season brings with it also that most disagreeable uncertainty, in regard to how the weather at 10 A.M., 12 M. or 2 P. M., may appear. Notwithstanding the bold and almost military appearance of the little woman on the barometer in the showwindow of our neighboring book and stationery store, positively indicating that a clear sky and fine weather must be the result, the weather, alas, continues as disagreeable, photographically speaking, as one could desire. Day-book, register, and ledger consulted, give no glowing accounts in our favor and therefore we turn to another class, i.e., those of whom we have learned to speak with reverence, such as Dr. Vogel's Hand-Book, Bigelow's Album, Philadelphia Photographer, Anderson's Skylight and Dark-room, etc.

Now I am quite certain that if I were one of the distinguished authors of these works, I should feel myself highly flattered, if an occasional acknowledgment of the benefits derived therefrom were given by those so benefited. It is rather astonishing, however, that we are obliged to listen to remarks of dissatisfaction against this or that work so frequently; in fact not seldom hearing the same pronounced as "impositions on the fraternity." These expressions naturally make one feel pigmy-like, in comparing ourselves with those who thus loudly speak, when we consider that we had termed this and that, and many other little suggestions, formulæ, glowing descriptions of travel and art, a general advancement of our art, and, in fact, have already adopted many of the ideas thus obtained. Having, therefore, a desire indeed within us, to see the results of those who can thus lightly speak of those whom we hold in high esteem, we avail ourselves of the first few spare moments and stroll up or down the streets and avenues of our town; and before going to the rooms, we stop for a moment in front of the display cases of our friends (denunciators of all advancement in our art), and it is then that a smile of satisfaction may be seen to steal over our countenance, as we suddenly wheel about with the resolve that we will continue to plunge deeper and deeper into all accessible reading-matter pertaining to our profession.

I do not at all feel inclined to assert that the mere act of hastily reading all the long articles, will result in the production of a thorough-fledged photographic artist. But for myself I am prepared to say that with the necessary application of the mind to the careful study of the many valuable works of instruction, and the proper practical application of them, ultimate satisfaction and favorable acknowledgment of the beneficial influence will be the result. Again it is not necessary for one to tamper with all formulæ and suggestions offered, but only to once lay out for himself a definite route, to be traversed by this or that sort of conveyance, and then to modify, as time and necessity suggest, in the several branches.

Now to give a plain illustration of the remarks above, I to-day send to your address, per mail, several views made on 11 x 14 and 8 x 10 plates; and it may not a little surprise you that all of them were made with a No. 8 Ross lens, 10 inch focus and smallest stop, the exposures varying from: No. 1, 2 minutes—No. 2, 1 minute—No. 3, 6 minntes-No. 4, 10 minutes, and No. 5, 12 minutes. And although the exposures were so varied, there was not the least change in formulæ from albumenizing of the plates to varnishing the same. Furthermore, after this tour in a locality most difficult of access, with a 11 x 14 heavy camera, collodion, bath and developer were filtered, the regular portrait work of my rooms resumed, and the first negative of a child at ten-seconds exposure resulted as per print also sent you to-day, which the printer refused on account of the abrupt vignetting, but it will suffice to illustrate the nature of the negative produced

Anxiously looking forward for the next number of the journal, I remain,

Yours respectfully,

JOHN H. HENNING,

Johnstown, Pa.

P.S. I would state that this was my first attempt at viewing, and that it is quite a source of gratification that my efforts are being appreciated, and many orders from the more intelligent are received. The stream along which the scenery lies is called Paint Creek, and its course is through the southeasterly portions of our county and the village of Scalplevel, about sixteen miles from our town, being frequented during the summer by residents of smoky Pittsburg, of whom a number are contributed by the School of Design of that city.

J. H. H.

Here is a young photographer who enters the practice of our art with all the glow and enthusiasm of an earnest worker; he adopts the right plan of informing himself, and is frank enough to acknowledge the benefit he has derived from books. Not doubting but what he tells us is true, for he had no idea of our publishing his letter, we have to say that he has made wonderful reaches in photography already; the views which he sends us are of scenery in the mountain regions near his home, and are certainly as fine examples of outdoor photography as it has been our pleasure to see for a good while. They are admirable, and prove Mr. Henning able to make good photographic work, to select artistic subjects, and to select subjects which are arbitrary to the most advantage.

Now is the time of year for photographers to take advantage of the spare hours, and improve them for their own good. It is just like precipitating so much clear, solid metal for future use and advantage, and should not be neglected. We have tried to meet the wants of photographers by offering in our circular of November 25th special advantages, which we believe will be largely enjoyed. If our means would allow, we should be very glad to place a series of our publications in the house of every photographer who needs information; we can only do the next best thing, which is to make the prices as moderate as possible. We leave the subject with you for your best consideration. Send for and read our circular.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.\* SERIES NO. 1.

The Philosophy of the Formation of "Sun-Pictures," as explained by different authors.

DHOTOGRAPHY Three Hundred Years Ago.-" It is claimed that there has recently been discovered a translation from the German, three hundred years old, which gives a clear explanation of the principles of photography. The ancient alchemists understood one of the properties of what we call chloride of silver. They knew that if images were produced by a lens on a coating of this chemical substance, the light parts became fixed in black, and the half tints in gray, while those parts which were not struck by the light were left white. Fabricius verified this in 1566 in his De Rebus Metallicus. In 1760 Tiphaigne de la Roche, in a very singular book, entitled Giphantie a Babylone,

<sup>\*</sup> In the beginning, I beg to acknowledge my indebtedness to all known sources of photographic information for what I gather from them, without further credit.—J. L. G.

supposed himself transported to the palace of the genii of the element, the chief of whom thus addressed him: 'You know that the rays of light reflecting various bodies paint them on the retina of the eye, on the surfaces of the water, and on mirrors. The spirits have sought to fix these passing images; they have composed a very subtle adhesive material, which hardens very quickly, by means of which a picture is made in the twinkling of an eye. They spread this substance on a piece of cloth, and expose it to the objects they wish to depict. The first effect of this prepared cloth is that of a mirror, near and distant objects being shown upon it; but that which a glass cannot effect this cloth with its viscous covering does, namely, it retains the image faithfully, a process which is the work of the first instant this is received on the cloth. It is taken away directly to a dark place, and an hour afterwards the glazing is dry, and you have a picture far more precious, truthful, and lasting than any that art can produce.' The spirit then entered into a physical disquisition; first, on the nature of the glutinous body, which intercepts and keeps the rays; second, on the difficulties of preparing and employing it; thirdly, on the mutual action of the light and the glutinous body. 'Three problems,' adds Tiphaigne, on waking from his trance, 'which I propose to the philosophers of our days.' Thus, if for the 'viscous cloth ' of the dreams of Tiphaigne we substitute iodized plates, paper, or collodion, we have the realities of Daguerre, Niepce, and Fox Talbot."

On Latent and Apparent Photographic Images.—"The earliest photographic fact on record is the blackening of chloride of silver (the alchemist's luna cornua) by the agency of light. Though Scheele and Count Rumford experimented on this substance, Wedgewood and Sir Humphrey Davy were the first to use it for pictorial purposes. They abandoned their pursuits, however, from their inability to fix their pictures. In making their experiments these philosophers were enabled to judge of their effect by their images being apparent and formed under their eyes; but subsequent discoverers, Niepce, Rev. J. B. Reade, Fox Talbot, Daguerre,

and Archer, disclosed a more subtle action of light when they established that *latent* images, equally perfect, were produced in a much briefer period of time, needing only the proper chemical reagents to make them evident. Into these two classes, *latent* and apparent, all photographic images may be primarily divided.

"Chloride of silver is the substance generally used for producing apparent images, as in sun-printing, and it is a curious fact that it was the first material used for the purpose, and is retained to this hour for the same use. For latent images iodide of silver is always employed, and whether it be daguerreotype, calotype, albumen, wax-paper, collodion, or any other modification, iodide of silver is always the base to act upon."

The Theory of Photography.—" Observation has shown that certain salts of silver undergo change in the presence of certain kinds of light. The change may be visible to the eye, as in the case of the darkening of chloride of silver, or may be ascertained by the behavior of the salt when certain chemical agents are brought in contact with it, as in the case of iodide of silver in the wet collodion process. It is none the less true that the latter change is as real as the former, though it be invisible to our senses. It is found that lights of certain colors affect the silver salts as well as pure white light, and that those of certain other colors refuse to cause that change. Those colored rays of light which will effect a change (visible or invisible) are termed actinic or chemical rays, all others non-actinic. When light is decomposed by a prism we have all the colors of the rainbow shown, and although they pass imperceptibly from one to the other, yet, for the sake of perspicuity, they have been divided into seven colors, which are called primary colors. They are red, orange, vellow, green, blue, indigo, and violet. Experiment has shown that lights of those colors which are included between the green and the violet are actinic, and that of these, those which produce the most rapid change in a silver salt are situated about half-way between the two. With different salts of silver the range of actinic power varies slightly, inclining more or less to the red

end of the spectrum. In some future day we may hope that some salt may be found to which red rays may be actinic, thus giving a more truthful complexion to nature as represented in a photograph. It should be remembered then, that white light only causes a chemical change in the silver salt, because of its components some are actinic. It is because the red and yellow rays are non-actinic that colored glass of these hues is used in our developing-rooms, the light admitted through such glass, if it be of good quality, being incapable of producing any primary change on the collodion film, which contains a silver salt. It must also be noted that when a ray of light is decomposed by a prism into its primary colors, and these be allowed to fall upon a film containing a sensitive salt, a change in the sensitive salt is produced beyond the place where the extreme violet ray is seen. These rays are called dark rays of the spectrum, and are usually denoted as ultra-violet. As these produce a change in the salt they are likewise actinic rays.

"Such is a short summary of the light which is valuable to photographers, and we shall now discuss the means by which the invisible changes that have taken place in the sensitive salts are made apparent and utilized.

"The sensitive salts of silver which are usually employed in photography are, the rodide, the bromide, and the chloride of silver. In order to illustrate the theory of the formation of a photographic image, the iodide will be taken as a type, the action of light on the other salts being similar.

"Iodide of silver can be formed in two or more ways: by the action of a soluble iodide, or of iodine vapor upon metallic silver; or by the humid method. This last method is that employed for its formation in ordinary photography: the soluble iodide of a metal, or a metalloid, such as cadmium, ammonium, etc., is brought in contact with a solution of nitrate of silver; the iodine, having a strong affinity for the silver, forms iodide of silver, setting the nitric acid free, which in its turn combines with the metal originally in combination with the iodide.

"Plain collodion may be considered, for the purpose of illustrating the theory of photography, as an inactive body, exerting no influence whatever on the chemical reactions that take place, but merely as a vehicle used to retain certain chemical compounds in *situ*.

"There are certain salts which contain bromine and iodine that are dissolved in collodion, and this collodion is flowed over a glass plate, and allowed to set. After setting, the film is immersed in a solution of nitrate of silver. This film containing the salts is, whilst still moist, taken out of the bath, and exposed to the action of light; if the rays are directed by a lens they form an image, if uncontrolled the chemical change takes place over the whole plate.

"The chemical change that takes place in the iodide of silver by the light, we have very good reason to believe to be the formation of a subiodide of silver.

"If no body which will absorb iodine be present this change will not take place, for if we thoroughly wash a plate on taking it out of the bath, and attempt to develop it, after exposure to light no alteration in its aspect will be manifest. It is therefore evident that in wet photography the nitrate of silver plays an important part.

"In dry-plate photography the action of light is precisely the same, but the free nitrate of silver solution is replaced in this case by some body which will combine with iodine.

"As we have said before, the change to the state of subiodide is invisible or latent, and we needs must find some agent which will bring the chemical action to the cognizance of our senses. Pyrogallic acid is a chemical which is well known for its affinity for oxygen, as are the ferrous or proto-salts of iron, the latter tending to form the ferric or per-salts that are to combine with more oxygen. We will take the example of the latter when applied to the latent image. It is based on the assumption that the subiodide of silver has an affinity for metallic silver, and, consequently, causes the silver from the free nitrate solution to be deposited by the developer upon those parts acted upon by light.

"A little consideration will show that if this action take place the image must be on the surface of the film, and not in it. Experience shows that such is the case.

"The theory of the reduction of bromide of silver by an alkali, as applied to dry-plate photography, proves that in that case the image is *in* the film, and not *on* it.

"In the practical formulæ for developers it will be noticed that the addition of (acetic) acid is invariably included. If to a solution of protosulphate of iron (or pyrogallic acid) a solution of nitrate of silver be added, it will be found that there is an almost instantaneous deposit of metallic silver. In fact, this is one method of reducing silver from an old bath solution. Suppose a developer such as this were flowed over a plate which had free nitrate of silver on it; it would be found that an immediate precipitation of silver took place all over the film. The attraction of the subiodide of silver (adopting our theory of development) would be rendered void, owing to the rapidity of deposit.

"If either of the solutions be acidified, the deposition would take place with greater regularity and less rapidity.

"If it were sufficiently slow, the subiodide would be able to attract all the particles of metallic silver as they were formed, and thus build up a metallic image. In practice the acid added is just sufficient to cause this gradual reduction of the silver. Heat increasing the rapidity of the chemical action, it follows that in decidedly hot weather a larger quantity of acetic acid should be used than in cold.

"The stronger the iron solution the greater chemical power it will have, and the more rapidly it will decompose the silver solution. As a consequence, with a strong solution, all parts of the picture acted upon by light will immediately become nuclei for the deposition of silver, and the deposit will be of more even density than if a weaker solution had been employed; for with the latter those parts most acted upon by the light—i. e., which had been most thoroughly converted into subiodide—having the most attractive force, would draw the deposit of silver to them, and the image would be much more intense at those parts than where the light

had less strongly acted. This, which is true in theory, has been verified by practice.

"Any method of increasing the opacity of the developed image, either by changing its color or rendering the deposit thicker, is called 'intensifying a negative.' The agents used are called 'intensifiers.'

"Either pyrogallic acid or protosulphate of iron may be employed with nitrate of silver, to cause an increase of density by thickening the deposit of the metallic silver. The reactions here are analogous to those of development, excepting that the metallic silver is the attractive matter instead of the subiodide. Both these have the property of assisting the decomposition of the solution of the silver salt, as before stated. The silver must be reduced gradually to the metallic state, when it will be deposited on those parts on which silver has already been reduced by the action of the developer, in the ratio of their densities.

"When we dip a piece of bright copper wire into a solution of nitrate of silver, on withdrawal we find it coated with a deposit of silver. If, instead of these two metals, we have silver and a solution of chloride of gold, we will find that the gold displaces the silver and produces a change in color.

"Any one acquainted with even the elements of chemistry will be aware that a solution of a silver salt added to other chemical bodies, such as bichromate of potash, permanganate of potash, etc., produces a precipitate of a varying color; in the first case a reddish one resulting.

"It is found that by flooding a developed and fixed film with certain of these chemicals, a corresponding change in color takes place. In most cases a preliminary conversion of the metallic silver to the form of iodide facilitates this change. This is accomplished by flowing over the plate a solution of a soluble iodide and iodine.

"To take another example of intensification by change of color: If, after the conversion of a small layer of the fixed image into iodide, we flow over it or immerse it in permanganate of potash, we get binoxide of manganese deposited on the silver

"After the development of the latent image or picture formed upon the sensitive

collodion film, the iodide and bromide of silver are left unaltered, and probably the subiodides and bromides.

"Looking at the reverse side of the plate (that which does not bear the film), the green color of the iodide and bromide of silver will be apparent.

"Were this unaltered iodide and bromide of silver left in the film, a print taken from it on paper in the ordinary manner would be found to be nearly a blank, the iodide and bromide possessing almost as much power of preventing the passage of light as the reduced silver itself. Certain chemical solutions, however, are found to be capable of dissolving the iodide and bromide, leaving the metallic silver unchanged.

"These chemical solutions are termed 'fixing solutions,' or 'agents,' and the operation of dissolving out the iodide and bromide of silver is termed 'fixing the image.' These terms apply equally to those agents and operations in printing which render the image permanent. Here, however, chloride of silver is acted upon. Dismissing the chlorides of the alkalies and iodide of potassium (owing to their imperfections as fixing agents), the first solvent of iodide, bromide, or chloride of silver that is to be noticed is hyposulphite of soda.

"The chemical reaction of this salt upon the bromide is similar to that upon the iodide. The double salt is soluble in a solution of hyposulphite of soda; consequently the darkest shadows of the image will be rendered transparent through the removal of the iodide (and bromide) by the application of the latter in excess.

"The only other fixing agent that is in general use is cyanide of potassium. Its chemical reaction on the iodide and bromide of silver is similar to that of the hyposulphite of soda, a double cyanide of silver and potassium being formed, which is soluble in a solution of cyanide of potassium.

"The cyanide of potassium has also a slightly solvent power on finely-deposited metallic silver. If a test-tube be coated with a fine layer of metallic silver, it will be found that a strong solution of cyanide of potassium will dissolve it completely after a short interval of time. Hence is apparent the need of using a weak solution

of this fixing agent, and allowing it to remain on the plate as short a time as possible.

"The cyanide of potassium is a deadly poison, and great caution should be exercised in working with it. Its fumes are deleterious to the system, and if the solution come in contact with a cut or sore place in the skin, festering is liable to occur. Should, by any accident, any of the solution be taken internally, a draught of iron developer taken immediately will render it innocuous. Similarly, the iron solution, applied to the cut or sore which has been in contact with the poison, will prevent bad results. If festers do occur through its use, an ointment made of lard and finely-powdered protosulphate of iron will prevent a further spread of the mischief.

"Most photographers recommend the hyposulphite, in preference to the cyanide, as a fixing agent, owing to the latter's poisonous character and liability to eat into the half-tones. The color of the negative given by the latter, by reflected light, is whiter, but by transmitted light, browner, and consequently more non-actinic than if the former be used. For this reason, and also on account of the much diminished washing that is required to free the film from the traces of the fixing solution, the cyanide is here recommended as the agent to be generally used.

"If ordinary precautions are taken, it need not prove hurtful to the operator through inhalation or otherwise; and if the film be washed *immediately* after the iodide of silver is dissolved out, there need be no fear of an attack on the half-tones. Hyposulphite of soda is to be avoided, on account of the mischief which even one drop of its solution causes to the bath.

"Great care should be taken that no acid come in contact with the cyanide solution, as it is decomposed, and hydrocyanic acid vapor (prussic acid) is given off. The vapor is almost more dangerous than the liquid solution."

"Art Photography will embrace all pictures where the artist, not contented with taking things as they may naturally occur, determines to infuse his mind into them, by arranging, modifying, or otherwise dis-

posing them, so that they may appear in a more appropriate or beautiful manner than they would have been without such interference. This class may easily embrace almost all subjects. In landscapes, the artist may select the period of the year, the condition of the weather, time of the day, point of sight, length of exposure, etc., as material agencies in modifying his picture. The same in portraiture, by arrangement of light, pose, expression, presence or absence of accessories, etc.; also in the composition of pictures, by the due attention to all the necessary parts, so as to form one harmonious whole.

"I feel that photography is capable of being made to minister to higher purposes than any to which it has yet aspired, and that it will as certainly take its place as a fine art as sculpture or painting. How early, depends on the earnestness, truthfulness, and intelligence of its votaries.

"The tendency just now is to produce art photographs by fragmentary portions, rather than direct and all at once.

"Strictly speaking, this consideration does not lie in our province. A photographer, like an artist, is at liberty to employ what means he thinks necessary to carry out his ideas. If a picture cannot be produced by one negative, let him have two or ten; but let it be clearly understood that these are only means to the end, and that the picture when finished must stand or fall entirely by effects produced, and not by the means employed. When judging of a painting, we do not ask the artist how many sittings he took from his models, or how often he arranged his lay figure; these are the mechanical appliances of the arts, the mysteries of the printing and paintingrooms.

"I lay stress on these points, because I find persons dwelling too much on the beauties of an art photograph, and praising the artist because he composed it from so many negatives, thus exalting too highly the mechanical instead of the artistic skill.

"We have abundance of mechanical ability; it is the artistic we want to cultivate. For my part, I am sorry to see that an artist-photographer is obliged to have recourse to more than one negative, and

can fancy how he must be annoyed and crippled by working in this fragmentary way.

"Of two given pictures, equal in merit and design, that one is the best which is secured by the *fewest* negatives; for he is the higher artist who produces the greatest results with the smallest means.

"I consider it, then, rather a demerit, that a given picture should require so many negatives to produce it; it indicates a poverty of means or design, and is so far a reflection on the art, or the artist, or both; for, after all, the ultimate picture must appear as if produced from one negative. Not only are the manipulatory difficulties increased, but the risks run are very great of altogether destroying that natural harmony and chiaroscuro always present in a picture taken from one negative.

"Finally, I do not think the advocacy of composition printing tends to advance art photography. It starts with putting clogs and fetters upon it. As mind is higher than matter, so is art loftier than mechanics. The artistic mind is not mechanically inclined. It is better—clearing all obstacles from his path—to allow the art photographer free scope to his fancy, and tramelled with few mechanical details, to give him freedom in the use of the camera and printing frame, as the legitimate ventricles of expressing his conceptions of beauty.

"In this way only, loving our art, can we hope to elevate it.

"As mechanical photography deals with material beauty, so let art photography treat with intellectual beauty; and when deep and earnest minds, seeking to express their ideas of moral and religious beauty, employ high-art photography, then may we be proud of our glorious art, and of having aided in its elevation."

(To be continued.)

Mr. Walter B. Woodbury, of London, has brought out the sciopticon in Europe, and it is now the leading lantern of England and Germany. We may say, too, that it is the leading lantern of America, because nothing else is so compact, or has so many advantages, either for oil or gas.

#### WHAT IS ART?

THIS is a query which we have for ten years been striving to constrain our readers to consider, in order that when once settled in their minds, they may adopt and practice its principles in their business.

We have from time to time given them series of articles on art principles, applicable to photography, and we feel sure that we have noticed as one of the results great improvements in the works of the photographers in the United States. But there is yet much more room for improvement and progress in this direction, and we shall, during the new year now at hand, endeavor to keep at it, and if possible to excite still more interest in the matter.

Artists are loath to permit photographers to make any claim to artistic merit; we are crowded out of exhibitions and collections, because our work is not considered as the production of art. Those who paint, those who cut and carve, however, are becoming more reconciled to the thought of allowing photography to walk alongside, and are becoming more lenient than they were, simply, we suppose, because they begin to feel that our art is a necessity to theirs. Of course, feeling our youth, we should be modest and patient, but persistent withal, and the day will come soon when we shall receive our just due. We of course have our own opinion as to the merits of photography, and not only claim that it is an art, but an incomparably expeditious one. Where is the painter or sculptor who would not quail at the thought of reproducing such lively representations of nature as are produced by our blessed art, in the same time? The subject is presented to the photographer, grumbling and growling and complaining and fretting because of the unpleasantness of sitting for a photograph, and our artist is expected in the few moments at his command to produce the most lifelike counterfeit that the exactions of an impatient nature can claim; while the painter or the sculptor is permitted to have ten times as many sittings, each ten times as long, with no complaint and no rebellion. Who then is the greatest artist but he who in the least time produces the most natural result? We leave

it to the "echo" of the St. Louis Society for the Prevention of Photographic Progress to answer. But we are straying from our subject. Our query is, What is art?

We find it admirably answered in a beautiful poem by Mr. Longfellow, in the December number of *Harper's Magazine*, entitled "Kéramos," which is none other than the history of the ceramic art, and which beautifully closes as follows:

"Art is the child of Nature; yes, Her darling child, in whom we trace The features of the mother's face, Her aspect and her attitude, All her majestic loveliness Chastened and softened and subdued Into a more attractive grace, And with the human sense imbued. He is the greatest artist, then, Whether of pencil or of pen, Who follows Nature. Never man As artist or as artisan. Pursuing his own fantasies Can touch the human heart, or please, Or satisfy our nobler needs As he who sets his willing feet In Nature's footprints, light and fleet, And follows fearless where she leads."

# MY SUCCESS WITH EMULSION WORK.

BY A FILTER.

MAKE bold to give you my experience, as an amateur, with the emulsion process, as it may help some brother amateur at least to find his way.

I began my experiments with emulsion partly because it requires less investment, and partly because it was something new, and I have yet no desire to undertake bath work. I believe that with an emulsion well made, a proper developer, and careful attention to details, success is more certain than with the bath. The emulsions which I find to be the most satisfactory are from two formulæ, one of which is taken from Professor Towler's Dry-plate Photography; the other was taken from one of the photographic magazines, which one is forgotten. The details and some of the formulæ have been altered, or such others substituted as were more simple, or gave better results.

I have found no difficulty in making my own emulsions, and by making them myself I can use them more intelligently, knowing their composition, etc.

In making an emulsion, I dissolve the bromides in the least alcohol possible, and when all is dissolved add the ether and cotton; in No. 2 the hydrochloric acid is added to the bromide solution before the cotton. The silver is always to be dissolved with heat, in as much alcohol as can be reserved from the formula; and when dissolved, it is necessary to add it to the bromized collodion immediately, to avoid recrystallization; the emulsion is then shaken hard and kept in the dark.

I use 5 x 8 glass with corners and edges ground, and clean the plates by putting in lye, then rinsing and coating with prepared chalk and water; when dry, rub off with a clean cloth and coat with dilute albumen, and stand them away to dry. The best substratum for all purposes is albumen and water, with a few drops of ammonia to keep it. The preservative given does not require anything to keep it; it keeps well even in hot weather.

After being coated with emulsion, the plate is placed in clean water until all greasiness disappears, then it is rinsed, and if required to keep for more than half an hour, it is flowed with the preservative, drained, and placed in the changing box.

If required for immediate use as a wet plate, the preservative is omitted, and the plate will work nearly as quick as a bath plate.

The film being always moist, will not bear rough usage, but is more sensitive.

The length of exposure depending on the age of the plate, the light and the lens, will be from thirty seconds to fifteen minutes. By the addition of three to six drops of strong solution of iron bromide to the ounce of emulsion, I have been able to get a good negative out of doors in two seconds, with good light. The emulsion so prepared will not retain its extra sensitiveness longer than a few hours.

Upon the developer depends the success of emulsions, which naturally lack intensity, as all do, more or less. The one given is the best of the many which I have tried; it gives strength, and is regular in its action.

Instead of trying to use pyro in solution, it is better to have it weighed out in "powders" of one or two grains each, which is sufficient for a 5 x 8 plate.

The soda carbonate should be fresh, not the effloresced article usually offered, and the silver and pyro should not be discolored; the purity of the chemicals is an important part.

To develop a plate, it is placed in clean water until the film is evenly wet, then rinsed and flowed with the developer, which is poured off when the image begins to appear; the plate is kept moving, and when fully developed, is washed and fixed; or, if irregular action should begin, it is to be washed with acetic acid and water, then fixed and thoroughly washed and let dry.

When a plate has become dry it should be flowed with alcohol before rewetting, to avoid blisters; then, after washing, it may be intensified with acetic acid, pyro and silver used rather weak, and quickly flowed. Beware of keeping it on too long; if once is not enough, make a new mix and apply again, etc.

The use of alcohol or sugar in the developer causes the film to look pink, reddish, or purple, by transmitted light, and is of no particular advantage.

The bromide of iron spoken of was formed by adding five grains of iron sulphate to seven to nine grains of potass. bromide in solution; this may not form iron bromide proper, but it is mixed in the proper proportions, and does what is required of it.

The following are formulæ which have given me the best satisfaction, with the most certainty and least trouble.

### Emulsions.

		TA (	9. 1.			
Ether,					2	ounces.
Alcohol,					2	"
Cotton,					24	grains.
Ammoni	um I	romi	de,		3	"
Cadmiun	n Bro	mide	, .		24	"
$Ag.NO_5$	(Nit	of S	ilver	), .	48	"
		No	2.			
Ether,					$2\frac{1}{2}$	ounces.
Alcohol,					3	"
Cotton,					20	grains.
Cadmiun	a Bro	mide	, .		40	"
Hydroch	lorie	Acid	, .		8	drops.
Ag.NO <sub>5</sub>	(Nit.	of S	ilver	), .	80	grains.

No. 1 gives intensity; No. 2 detail; they may be mixed to obtain the happy medium. No. 1 is improved by more ether.

#### DEVELOPER.

#### Stock Solution No. 1.

Water, . . . 4 ounces. Soda Carbonatc, . . ½ ounce. Ammonium Bromide, . 10 grains.

#### No. 2.

Water, . . . 1 ounce. Pyrogallie Acid, . . . 40 grains.

#### Accelerator No. 3.

Water, . . . .  $\frac{1}{2}$  ounce. Ammonia, Concentrated, .  $\frac{1}{2}$  " Ammonium Bromide, . 20 grains.

The accelerator is added to No. 1 (six or eight drops), before No. 2, when ready to use, but is not often required.

#### PRESERVATIVE (Stock Solution).

Water,			3	ounces.
Albumen,			$\frac{1}{2}$	ounce.
Glycerin.			1	"

The developer is Newton's alkaline, and to it I give most of the credit of my success with emulsion.

In conclusion, I would say that nothing new has been told, it having been my object to give a sort of compilation which forms a simple and reasonably certain method of working emulsion, dry or wet.

[Translated for the Philadelphia Photographer.]

#### ORDINARY DRY COLLODION.

BY E. BOIVIN.

VERY much simplified; certain in its results; of long preservation; with a sensitiveness equal to that of wet collodion, with or without the use of a preserver.

#### PREPARATION OF THE PLATES.

I collodionize upon plates cleaned and covered with a preliminary coating of albumen, as indicated in my preceding articles, and then sensitize in the ordinary silver bath, or preferably in the following:

At the end of three minutes I withdraw the

plate, and, without washing, plunge it into a solution of one gramme (fifteen grains) of chloride of sodium with one thousand (thirty-four fluid ounces) of water, in which I have dissolved one decigramme (one and a half grains) of gallic acid. This solution is renewed for each plate, and the dish should only contain the necessary quantity for the immersion. At the end of one or two minutes it is only required to wash the plate in pure water and place it on the drainer to dry.

The object of this operation is to neutralize the corrosive action of the nitrate of silver, which later would produce failures, and form in the body of the coating itself chloride of silver, which acts as a preserver, and also mechanically in preventing the molecular displacement of the collodion in the drying. The slight traces of gallate of silver formed by the gallic acid act as a sensitizer.

To obtain great rapidity, and at the same time to assure the very long preservation of the plates, I find it very advantageous to cover the coating after washing with a lead-gallo-salicin preserver, before allowing it to dry, as follows:

#### No. 1.

Alcohol, . . . 25 c.c. (6\frac{3}{4} fl. drachms). Gallic Acid, . . 2.50 gr. (46 grains). Salicin, . . 1 gr. (15 grains).

#### No. 2.

Acetic Acid, . 25 c.c. (6<sup>3</sup> fl. drachms). Acetate of Lead, . 1 gr. (15 grains).

#### PRESERVER.

Water, . . . 100 c.c.  $(3\frac{1}{3}$  fl. ounces). No. 1, . . . 5 c.c.  $(1\frac{1}{3}$  fl. drachm). No. 2, . . . 5 c.c.  $(1\frac{1}{3}$  "

To be applied several times to the sensitized coating, which is washed and dried. Immerse in water before development.

The plates when completely dry are placed either in a grooved box or in the frames, to be used when wanted. They may be kept indefinitely without losing any of their sensibility, when all the manipulations have been made with proper care.

#### EXPOSURE.

The necessary time of exposure is sensibly the same as that required by the same collodion used wet. It varies with the kind of objective used, the size of the stop, and the composition of the subject. As a general rule to be adopted for all dry processes, it is always preferable to prolong the time of exposure. This process, moreover, readily adapts itself to this, as the plates have not a great tendency to solarization.

#### DEVELOPMENT.

Washing the sensitized impressioned coating is not indispensable before development, but it is always preferable to soften it by immersing the plate in water before submitting it to the action of the developer. In all processes it is a delicate operation, and requires all the care of the operator to cause the latent image to appear. I proceed in the following manner to obtain this end without difficulty: I pour into a dish the required quantity to cover the plate, of a solution of gallic acid with three or four grammes (fortysix to sixty-two grains), for one thousand of water (thirty-four fluid ounces). I add a few drops of acetic acid, containing from twenty to thirty grammes (309 to 463 grains) of acetate of lead for one hundred (three and onethird fluid ounces) of acid. Then one or two drops of nitrate of silver at three per cent.; I shake well, and without waiting plunge the plate to be developed. If the exposure has been suitable, all the details show themselves successively and rapidly as the dish is moved; I withdraw the plate, and again add some drops of nitrate of silver; I replace the plate, and in a short time the development is complete. I wash the plate, and after examination of the image, I strengthen it, if necessary, by the known methods. I then fix with the hyposulphite of soda.

The acetic acid, containing acetate of lead, serves both as an accelerator and moderator in the development of the image; it should be added in a larger proportion when the subject presents contrasts than when it is of uniform composition; it is with it that softness and harmony are obtained. Development may also be made with ordinary pyrogallic acid or sulphate of iron; but I much prefer that with gallic acid in the manner just indicated; it is so easy to work that it

has caused me to adopt it in preference for the development of the plates.

The operations of this process may be thus resumed; collodionizing on a plate having a preliminary albumen coating.

Sensitizing.—Immersion in a solution of chloride of gallic sodium.

Washing.—Use of preserver or not, and drying; exposure, development, and fixing.

It is hardly possible to render more simple the manipulations of the actual iodo-bromide process; it is only the new processes with washed emulsion and bromized collodion which offer the advantage of reducing them; but as the processes are as yet uncertain, it is necessary to await the results of the experiments now undertaken by all, and which certainly will soon cause their exclusive adoption.

Of all the ordinary dry collodion processes, the most rapid and certain in its results is, without doubt, the one that I have just described. In my personal practice I much prefer it to the new bromide processes which require so much care in their use, and besides, because the exposure is much shorter. Every one can easily convince himself of the excellence of these results by making a few experiments, and will remark, as I have done, that the darkest portions as well as the greens are admirably reproduced, and that the foreground and background appear with extraordinary delicacy.

For beauty of execution, the negatives obtained with the collodion just indicated rival those obtained with emulsion and bromized collodion; it has the immense advantage of being more easily used, of not offering the same difficulties in the preparation, of being much less expensive, and of not requiring in the laboratory a light so antiphotogenic, which with the pure bromide processes infallibly gives veiled prints.

This process I am now using as a basis to compose an iodo-bromized emulsion, which being poured on the plate will give a sensitive preparation; the rapidity will be greater than that of the pure bromide emulsion, and the development of the image may be made without difficulty with gallic acid and lead, which is so easy to conduct, and which does not always happen with the alkaline devel-

opment, which is often very variable and uncertain.

When my experiments on this subject shall have ended, I will hasten to communicate the results to my readers.—Moniteur.

[Translated for the Philadelphia Photographer.]

#### FRENCH ITEMS.

M. TERPEREAU, of Bordeaux, who is uses a very simple kind of screen to intercept light in the laboratory. It consists simply of glazed muslin which he frames in thick pasteboard, and places on the lighting To be certain there is no veil, he commences by using an experimental screen composed of several sheets of glazed muslin pasted one over the other and forming a scale, as do the yellow glass plates used in photometers. By exposing underneath a plate or sensitized paper, he can easily determine the suitable thickness, and consequently the number of sheets that it is necessary to superpose. This method is practical, inexpensive, and gives screens that cannot be broken.-Moniteur.

The following translations we make from Dr. Phipson's correspondence in the *Moniteur*:

The permanence of carbon prints has given rise, as we all know, to animated discussion, and it is a question not easily solved. We see that at Brussels a well-known photographer, Mr. Geruzet, has recently shown to his colleagues a carbon print which had been exposed to daylight two years and a half, and which had lost none of its original merits. The general tone of this print had uniformly weakened, but the half-tones had not been affected, "which would have happened," it is said, "with a silver print under the same circumstances."

WE have recently spoken of the phenomena of reticulation in carbon prints; it appears that at the same time small blisters have been discovered. This subject still occupies the attention of our experimentalists, and two of them have independently fallen upon the same remedy. Mr. D. T. Burrelle, who had tried a number of things,

and who was beginning to despair, finally put an end to the cause of the trouble by using a weaker bath, which he gives as follows: "One ounce of bichromate in ninety ounces of water; five drops of ammonia, and three onnces of alcohol; the result was that the reticulation and blisters entirely disappeared; positive and transparent prints are all that can be desired." Mr. English reaches the same solution of this difficulty. "Instead," he says, "of using a sensitizing solution at two and one-half per cent., as has been indicated, use only a bath at one and one-half per cent., and float the tissue over it until it is quite flat, the temperature not being over 15° C. (59° Fahr.)" Desiccation should be prompt. If the weather is rainy and desiccation requires a long time, the print will be very hard to develop.

To-day, when many artists are using photography on canvas, it is well to recollect that it is a dangerous process to obtain the image directly on the canvas, as it cannot be well enough washed to entirely remove the hyposulphite, however soluble may be this salt. It is better not to risk the contact of the hyposulphite with the oil colors, and to use some transfer process. The Autotype Company at London is accustomed to transfer carbon prints to canvas, and has described the process in its little manual.

Mr. Simpson has used for a long time a very simple process. First, he washes the surface of the canvas with soap and hot water, using a piece of flannel; then he rinses with alcohol. In this way is completely removed the grease that adheres to it. Then the surface is treated with a very weak solution of gelatin, to which has been added a little alcohol. The developed print is applied to the surface thus prepared, and whilst yet a little wet the two surfaces are well pressed together; when the whole is dry the canvas is raised, which carries with it the carbon print.

A REAGENT of very great sensitiveness has just been discovered, by means of which the least trace of the hyposulphites may be detected. It consists of a solution of permaganate of potash in caustic soda, and diluted with water. One decigramme (1)

grains) of very pure permanganate, and one gramme (15½ grains) of perfectly pure caustic soda, are dissolved in a half litre (17 fl. ounces) of water, which gives a liquid of a beautiful crimson red. This liquid suddenly changes color by the addition of a trace of hyposulphite, and becomes green, owing to the formation of manganate of potash. What is curious is that this reagent shows, it is said, not only the presence of traces of hyposulphites in the sulphates and other completely oxidized salts, but also in the hyposulphates and sulphites.

A PROPOSITION has been made to the English government to establish a permanent photographic gallery, to be attached to the National Gallery, at London, and having for its object the reproduction of everything that exists in the fine arts, painting, and sculpture in different countries.

It is asserted that positives on the flexible tissue of Mr. Warnerke, of London, make excellent transparent prints for the lantern, etc.

Mr. Ferton, of Manchester, has just patented a process to render paper impervious. This process seems to be based upon the treatment of the pulp by soluble and insoluble salts of zinc in combination with salts of ammonia; or a solution of the double salts of ammonia and zinc, is applied to the paper or cloth, which passes through the selution by means of cylinders.

In Germany, according to our papers, Mr. Hankel has investigated the action of light upon the electric state of metals plunged in saline solutions. To give an idea of these experiments, which may one day be of great value, we will cite the following: Two polished copper plates are immersed in pure water, contained in a black box; the plate on which falls the solar light becomes electro-negative as regards the other.

Mr. J. Parry has completely succeeded in obtaining a series of photographs of the spectrums given by the different metals; his process is extremely simple, and will be well received in the scientific world. He uses an induction coil, giving sparks six inches in length; the spectrum of this spark can be reproduced without difficulty, and if the platinum poles are wet with the metallic solu-

tions of which the spectrums are to be obtained, the spectrums of these metals are reproduced. In this way Mr. Parry obtained the photographic spectrums of Bessemer steel and ordinary iron in a space of time not exceeding thirty minutes. In these investigations the author has abandoned the use of wet collodion, and uses instead dry uranium plates; the advantage of these is that they may be allowed to remain in the camera as long as may be wished, so as to obtain several spectrums on the same plate, which afterwards are developed in a single operation. The induction coil is furnished with six of Grave's elements.

Salts of iridium and rhodium may be used for toning in the same manner as the salts of gold, of platinum and palladium. But of all these compounds, it appears from recent observations that the salts of palladium present the most advantages. The chloride of palladium and of sodium, corresponding to the salt of gold, can be sold here cheaper than the compound of gold and sodium, and seems to possess all its qualities. When an entirely neutral black tone is desired, it is better to tone with salt of palladium. For transparent prints, such as those used for lantern slides, this black and opaque tone is very advantageous. These different metals, belonging to the gold and platinum group, have been examined for their phosphoric qualities by Captain Sellon and Mr. Wharton Simpson some time ago: but at that time palladium was dearer than gold. For toning transparent prints, Mr. Sellon uses with great success a bath containing one-quarter per cent. of chloride of palladium; and for ordinary toning a neutral solution of the same strength made with chloride of palladium and sodium.

EXPERIMENTS have been made for the purpose of recovering and utilizing the chromic acid which disappears in the washing during the operations of the carbon process (Lichtdruck, Woodburytype, etc.). Dr. Schnauss has made several efforts in this direction, but he encountered many difficulties on account of the large quantity of organic matter contained in the water. Nevertheless, it is possible to utilize the chromic acid of the first washing, to which is added

a little acetic acid to decompose the carbonates, then all the chromic acid is precipitated, in the state of chromate of lead, by the addition of acetate of lead. The price of chromate of lead is five times higher than that of the acetate.

"ABOUT fifteen years ago I made some experiments for the purpose of discovering a substance which could take the place of albumen in its photographic functions. It is easy to conceive the importance of restoring to alimentation the enormous quantity of eggs which are now used in the practice of photography. One of the principal advantages of albumen is, as is well known, to retain the image on the surface of the paper and to render this surface smooth. I discovered a substance that can fill these conditions, and which is free from the defect that albumen has of retaining a certain quantity of silver under the form of albuminate, which cannot be fixed. But the experiments in question were interrupted by laboratory work of a more pressing nature. To-day I find among my papers a few notes, which allow me to give to your readers an idea of this discovery. The paper used should be thick and of good quality; but I think that an ordinary strong paper would answer just as well. The substance that I used as a substitute for the albumen is the silicate of aluminum. This substance I formed on the paper itself by using two baths, one containing a concentrated solution of alum, the other an aqueous solution containing an equivalent quantity (to the alum) of silicate of potash. The paper is first floated on this latter bath, as in ordinary sensitizing, is well drained and placed in the alum bath, in which it remains one or two minutes at the most. It is then allowed to drain for a few minutes, and whilst the sheet is yet damp, it is passed through very smooth cylinders and allowed to dry. It is sensitized in the nitrate bath, etc., as for ordinary albumenized paper. A few small positive prints that I formerly obtained with this new paper, precisely resemble the prints made with ordinary albumenized paper. Without doubt this simple process will require some improvements. I can only hope to be on the track of replacing albumen by a substance much less costly, and which does not serve as food."

#### GERMAN CORRESPONDENCE.

After-exposure and Scotellari's Formulæ— New Observations on Visual Purple—Mezzotint Effects—Salicilic Acid for Redevelopment—Mounting Large Pictures—Glassprinting Process—Warnerke's Emulsion and Apparatus.

PHERE are certain things in photography which repeat occasionally, and engage, as pretended news, for a short time the attention and the purse of the photographer. In this line also belongs after-exposure. The same has been preached six years ago as a new gospel by Gage, of Vermont. It has caused many discussions, and was finally forgotten. We have now the same history in Europe. I communicated to you already that the disciple of the violet light, Scotellari, had been in Berlin last summer with the intention to introduce a new kind of after-exposure by means of the violet light. Besides, he offered his new formulæ, and tried to sell his secrets, although without success. He seems to have had more luck in England. I lately saw formulæ for which he asked forty shillings, among which the collodion merits first attention. It contains two ingredients which seem to be new, namely, iodide of magnesium and anilin violet. Of the iodide of magnesium is known that it is easily to be decomposed by nitrate of silver. The arising iodide of silver is not in the least different from that which is formed by the usual iodizing salt, and therefore the presence of iodide of magnesium has not the slightest advantage. More curious still is the addition of anilin violet. This color seems to be for Scotellari the photographic philosopher's stone; we wonder that he does not paint the glass of his skylight with it. It is known that the violet light offers no advantage; nevertheless he uses it to tint his transparent papers with, through which he performs his after-exposure; finally he adds it to his collodion. He seems to think that the collodion should be effective for the same color which it contains. This is an error which is unfortunately extended too far. I have made many experiments with anilin violet two years ago, and found by no means that it renders the collodion effective for violet light, but for the orange

light, therefore the addition of violet offers not only no advantage, but it reacts injuriously on the silver-bath, which it decomposes, and I think that for this reason Scotellari's chemicals gave much worse results in Berlin than our usual ones. His formula for the silver-bath is as follows:

Water, . . . . . . 1000 c.c.

Nitrate of Silver, . . . 70 grammes.

Iodine, . . . . 4 "

It is astonishing how much iodine he uses. The result will be a supersaturation of the silver-bath with iodide of silver, and consequently pinholes. At the same time iodate of silver is formed, which consequently overfills the silver-bath with nitric acid, which is certainly of no advantage to the bath.

In his developer the only addition of sulphate of magnesia is remarkable. I think it is useless to prove to a chemist that this salt has not the slightest reaction on the plate. It seems as if the inventor had tried everything to increase his usual formulæ by some salts which, if they do not injure the compositions, have no further advantage, and besides appear to be something new. After-exposure has been often tried in Berlin since Mr. Scotellari has gone away, although always with a very doubtful success. It is strange that it has proved false in bad weather. The good results which were obtained in some cases during the summer were never regained. Mr. Trüll, of Berlin, makes use of after-exposure in cases where he is convinced that the negative is underexposed-in taking photographs of children, for instance. He keeps the lens-cover, decked with black velvet, in an inclined position before the lens, and reflects thus for a few seconds a weak light on the plate.

I communicated to you last year about the new discovery of visual purple, a sensitive substance on the retina, which is bleached by light, so that a positive picture is formed on the retina by the act of viewing a subject. This guided the preconception to regard the distinction of subjects by sight as a photographic process.

This opinion, however, has to sustain a great limitation, as according to Prof. Kuehne's recent discoveries, the phenomena

can also take place in the absence of this purple. This may be proved by viewing a subject in a manner that the axis of the eye is directed straight to it, in which case the picture will be situated just on the yellow spot in the centre of the retina, which contains no purple. Kuehne made his experiments with frogs. He exposed the same a short time to sunlight, in order to destroy the purple, which is only reformed after a space of thirty minutes. During all this time the frogs could not only see, but they even distinguished colors. Kuehne proved it first by stating that frogs like the green color. They always moved to the green window-glass of a box, with different colored window-glasses, in which the frogs were kept. They continued doing so after the purple in their eyes had been destroyed by sunlight. This proves that the visual purple has but very little to do with the action of seeing.

A photographer lately told me of a very simple method of producing pictures with mezzotint effect. He exposes about half, moves then between subject and lens a glass plate to and fro, which produces a slight unsharpness which takes the hardness from the picture.

Lately salicilic acid is recommended for strengthening. Mr. Richter gives us the following formula:

Iron Developer, . . . . . 1 part. Nitrate of Silver Solution, 2 per ct., 1 " Saturated Solution of Salicilic Acid, 1 "

The latter has reducing power, and keeps the plates clean. Richter pretends even that the use of salicilic acid will give more details.

The mounting of large pictures is difficult, and I should think that a simple manner of mounting the same would be well known. Instead of laying the bristol-board on a table, it is fastened on the wall or on the door. It is now exceedingly easy to get the picture in the right position on the board without any wrinkles.

In my last letter I wrote you about the excellent glass-prints of the Royal State Printing House, of Berlin. The method of manufacturing them is now published. Mr. Brem, director of the said institute, resumes

as follows: "An albumenized glass plate is collodionized with a collodion which produces a hard picture. After exposing, strengthening, and fixing of the same, it will be coated with a thin coat of a solution of gelatin and bichromate of potassium, dried and exposed again from the rear until the drawing appears dark blue. maining soluble chromate is then to be washed out with cold water, and the plate inked in with a thin lithographic printing ink. In order to get rid of the still remaining half-tones, the plate must now be etched with a solution of gum, with an addition of gall. The plate is at once ready for printing, and needs to be treated like a lithographic stone. It will not stand many impressions. One impression, however, on a stone will give thousands of duplicates afterwards.

Mr. Reiding, of Berlin, performs an impression on zinc, which he takes afterwards and produces thus a printing-block for the block-printing press. This method is undoubtedly one of the easiest heliographic methods ever known. It does not reproduce thin half-tones, and for this reason it can only be used for the reproduction of drawings in lines.

Mr. Warnerke, of London, was recently in Berlin. This gentleman has acquired a great merit in emulsion processes. He showed me some of his own emulsion, which was astonishingly sensitive. He made some views in my studio just as quick with emulsion as with the wet-plate process. course, his plates had not quite the same harmony in shading, in which the wet plates will always be the victor. His results were good enough for all cases in which the highest effort of art is not required. Mr. Warnerke showed me also his emulsion-papers and camera, which indeed represents the possibly simplest and most agreeable instrument for travelling photographers. stead of taking heavy glass plates, one has a roll of emulsion-paper in the plate-holder, in which it can be unrolled so that one hundred pictures can be taken on one piece of paper. I described to you this apparatus two years ago, so that I dare suppose it is Mr. Warnerke is on his way to Russia, hoping to introduce his invention in St. Petersburg for use in the army during the present war. He thinks to make it possible to take instantaneous views of the whole battle-field by means of a balloon, in which the camera is to be raised up to a certain height, from which, by means of electricity, the lens will be uncovered for a moment. We shall learn, perhaps, by his camera, if the soldiers in Plevna have still provisions or not.

With the best wishes for a Happy New Year to all your readers,

Yours truly, H. Vogel.

BERLIN, November, 1877.

#### SOCIETY GOSSIP.

BOSTON SOCIETY.—Regular monthly meeting; President Rowell in the chair. Records of the previous meeting read and approved.

By special invitation of the Society, members and the fraternity generally were invited to bring ladies with them, as Mr. Wilfred A. French, recently returned from abroad, would exhibit a choice variety of lantern slides, illustrating the history and fine arts of Europe.

A company of about eighty ladies and gentlemen were present, and the President made a few brief remarks, stating that the regular business of the evening had better be deferred till the next regular meeting, as it would be more interesting to those present to listen to the lecture prepared by Mr. French.

The exhibition included some of the finest specimens in existence of architecture in its various styles, the gothic and renaissance predominating; also faithful representations of the gems of the Louvre, Vatican, and other celebrated sculpture galleries. During the evening the audience became thoroughly acquainted with the chefs d'œuvre of Giotto, Arnolfo, Brunelleschi, Michael Angelo, Canova, Thorwaldsen, etc., and were greatly assisted in discovering the merits of these maestri by Mr. French's lucid descriptions, which were replete with valuable bits of history and original ideas. Mr. French spoke without notes, and his clear, off-hand remarks and wonderful mastery of names, dates, and places, were freely applauded.

At the conclusion, a vote of thanks was tendered Mr. French for his very interesting exhibition.

Meeting adjourned at ten o'clock.

E. F. RITZ, Secretary.

#### ONE TURN BETTER.

WE clip the following item from a local paper:

"A 'GREAT NATIONAL BABY SHOW' is to be held in Philadelphia, beginning on Monday next. In an advertisement for babies to be exhibited,

the management say:

"Wanted—Triplets, twins, phenomena, handsome babies, crying babies, irascible babies, noisy babies, fat babies, supercilious babies, pugnacious babies, homely babies, laughing babies, contented babies, quiet babies, lean babies, unassuming babies, angelic babies."

The expense of this advertisement could have been saved the projectors of the great baby show, if they had applied to any firstclass photographic gallery. Any photographer could have given the addresses of an unlimited quantity of babies of all the classes named, and some possessing qualities which are not named. Of course every photographer within reasonable distance visited this baby show (we did), not only for the purpose of studying the different kinds of babies, to see if he could find any new variety (for every one from James Landy down has a passion for babies), but also to study the different kinds of mothers; to say nothing of the ancestors and mothers' sisters, which are the aunts of the babies.

We need not mention all of the varieties of baby that are met with in the photographic gallery. We all know that the above list does not cover them, and some time we may perhaps offer a premium for a new kind of baby.

Last month St. Louis took the premium. We found the St. Louis Society for the Promotion of the Lambert Process and the Prevention of Photographic Progress and the Production of Peculiar Babies, busy last month over a four-handed child, and in our last number pictured the dreadful doom which seems to hang over us. We make haste now to ask a suspension of public opinion against the

aforesaid society; and with the earnest desire to give its able members and its persistent organ their full due, we take pleasure in giving space to the notice of another discovery by the aforesaid society, which brings with it a little more cheerfulness than did the last.

It comes so quickly upon us that we can hardly flatter ourselves with the thought that it was induced by the dreadful howling we made over the production of the fourhanded baby, and yet it may be that this society, which is known for its rapidity of action and persistency, may have done even this much.

The baby is of the girl persuasion, and the savants of this distinguished society are again indebted to a photographer for bringing such a distinguished example before them. It is a baby which has been found so wondrously tough as to be capable of resisting the influence of the strongest head-rest, both of the Wilson and Spencer patterns. The photographer in question, whose name we are asked not to mention because of his modesty, recently tried an experiment with this novel baby, which seems to have established its remarkable toughness beyond all doubt. Not being able to control it with any ordinary head-rest, patented or unpatented, and being utterly unable to quiet it, he tried the experiment of dropping it from his studio stair. course he expected to find a short way thus of getting rid of the baby, but what was his horror to see the little one display the most enthusiastic signs of life, until some philanthropic man came along, and hastening to the spot with a basket and a stray coroner who had been hunting for corpses for some time, gave a diabolical whoop and impanelled a jury on the spot. The photographer, without speaking to the mother or her sisters and ancestors, hastened to the ground floor to serve upon the jury, but was utterly disgusted to find the baby still able to dispute his gentle coaxings, and ready to have another sitting. "A most thorough inspection," says a local paper, "failed to find a bruise or break on the surface or in the interior of the infant. Its toughness was demonstrated, and it is hardly necessary to say, that both the public and the local press regard the baby's fall not as an accident, there can be but little doubt, since the inventive photographer confessed that it was dropped as an experiment." He merely wished to see whether or not the baby could be really suppressed sufficiently long to enable him to make a picture of it.

Now if the able society to which we have alluded is equal to the occasion, it will investigate the matter until it finds out what mysterious potion was given to this baby by the enthusiastic photographer, to enable him thus to suppress infants without breaking them or injuring them. If they can do this they will then confer a benefit upon photography, which will do much towards counteracting some of the evil which they have been guilty of, and perhaps place them on a proper footing with other scientific societies.

Of course we are accustomed to looking at everything from a practical standpoint, and we do not of course consider what advantages also such a discovery would be to all mothers, and what a comfort it will be to them to know that they need have no further apprehension in regard to windows and stairs and photographic head-rests. Confidence between the photographer and his patrons will at least be increased vastly, if not wholly restored, and it will be unnecessary for mothers to bring a half-dozen or more relatives with them, each making the baby subject to noise and humor, for by this potent fluid one photographer and one mother can manage any extraordinary baby without fear of breaking it or causing its death, and thus will photography take one more step in science, and add one more degree to the comfort and happiness of human kind.

We have only one other suggestion which may be included in this discovery, namely, that an effort be made to combine in the invention that quality of baby nature which will enable it to expand or contract at will, and thus render it possible for the photographer to make a negative from which a large or small picture ean be printed with but one sitting. This being done, we will send to the St. Louis Society our magazine for the new year, free of all charge, as a premium, with the understanding, however, that none of these expansive or tough babies are to be allowed to edit any more photographic magazines.

#### OBITUARY.

W L. GERMON.—On the 1st of Decem-. ber, at the age of fifty-five years, Washington Lafayette Germon died in this city, after a lingering illness. He was known to a great number of our readers, since he was a member of the National Photographic Association, and an officer as well, and a regular attendant upon its conventions. Those who did know him remember how genial and how kindly he was, and will regret to hear that he has been snatched away so soon. We have long had his personal acquaintance, and when going to distant cities for attendance upon our conventions, he was generally in the same company, and did much to enliven and relieve the tedium of a long journey by his wonderful power to entertain and please.

He was, as will be seen by what follows, one of the fathers of American photography, and at one time one of the most prominent members of the fraternity in the United States.

His last studio, which was located in Arch Street above Ninth in this city, was one of the most tastefully arranged and accoutred of any studio in the city, being, as it was, furnished with a museum of curiosities and bric-a-brac calculated to relieve the waiting of one's turn.

Mr. Germon's health in later years, though never at any time too sturdy, prevented him from pushing his business with as much energy as he would have liked. His earlier career can be better described by his old partner, Mr. J. E. McClees, from whom we have received the following concerning the deceased.

Washington Lafayette Germon served an apprenticeship to the business of steel engraving with the firm of Toppen & Carpenter, bank-note engravers. He became a very good letterer, but I do not think ever essayed figures or ornamental engraving. At the end of his apprenticeship he started the business of card engraving at 80½ Walnut Street, and occupied an office in common with William H. Gihon, a very warm friend of his, afterwards of the firm of Gilbert & Gihon, Sixth and Chestnut Streets.

Germon was always troubled with weak

lungs, and becoming impressed with the idea that his sedentary business was shortening his days, he east about for some more healthful occupation. In the same building (on the site of the old Quaker almshouse) was an elderly man, a lithographer, named Watson. Watson had gained somehow a slight theoretical knowledge of daguerreotyping, then quite a new business. He persuaded Germon to purchase a daguerreotype apparatus, and the two commenced to practice the art, then an almost purely experimental one, but with ill success. Germon's amiable qualities, his social and genial nature, had made him hosts of friends; he obtained plenty of patrons, but, alas! the inexperience of Watson and himself defeated all their efforts-they had the customers, but could not make the portraits. Germon's little means were dwindling away, and at the time that I first met him he was in despair. I was at that time engaged as operator for M. P. Simmons, in Chestnut Street below Fourth. At the earnest prayer of Germon I took a day from my business, having previously put his traps in some kind of working order of evenings, and made a few of the most pressing orders.

With the things in working order Watson essayed again, but with no better success. Germon was in despair. About this time I left the employ of Simmons to engage with T. P. Collins, on Chestnut Street a few doors above Third (the former partner of Simmons). But before entering on the engagement, I went again to spend a few days with Germon to get him out of his troubles and fairly started. The result was that I remained with him for over seven years, and a partnership was formed of a rather unusual character, as there never was a scratch of a pen or even a verbal agreement-a mere tacit understanding. We remained about a year at the rooms on the old almshouse property, and then removed to the old building at the southeast corner of Eighth and Chestnut Streets, where we succeeded a party named Moulson, and where we remained until the building was demolished. During the time the new building was in course of erection we passed the summer (1848) at Cape May, and had a temporary gallery in one wing of the old Congress Hall.

It was during this time that Germon distinguished himself by saving the life of a young man, a stranger, who had gone out to bathe beyond his depth, and was about to perish. The prowess and brave generosity of this act added to the host of friends with which his frank, open nature always surrounded him.

In the early autumn we reopened in the former location, but finding that the building was not well adapted to the business, and feeling that the owner had not done us justice, we removed to the building opposite the old Masonic Hall, Chestnut Street below Eighth, now occupied by Benkert, the bootmaker. Here we remained three years, when we removed to more commodious quarters in Fisher's building, Chestnut Street below Seventh, where we remained until we were burned out on the night of March 15th, 1855.

We then gathered some traps together, and occupied the rooms at the southwest corner of Seventh and Chestnut, pending the time the building was being repaired. During all the eight years we had been together, we had had no settlement and it is not surprising that when we came to make one we should conclude to part, especially as Germon seemed anxious to go into some other business.

From that time to the present there are many who know more of Germon than myself, among whom I would mention Mr. William Bell or Mr. John McCaffrey. I should have mentioned the fact that with the exception of the Messrs. Langenheim, we were the first to make paper photographs in this city. The Langenheims had some time before made photographs by the process of John Fox Talbot—paper negatives under the name of Talbotypes—but had abandoned it before we purchased the patent of Whipple of Boston for negatives on albumenized glass, with the dubious name of "crystalotypes." This was in 1853.

These hastily-written notes will, I trust, give you sufficient data for the intended obituary. To me it is a satisfaction to be able to testify to the uniform temper and chivalrous, childlike disposition of the deceased, whose errors were few, and those few always of the head, never of the heart; and

although our intimacy did not last until the end of his days, I shall aways think with tenderness and affection of my old friend and partner. Truly yours,

J. E. McClees.

We add our testimony to the very pleasant and generous nature of our late friend, and wish that photography may be continually graced by natures so unselfish and noble as his was. We know many things of his private life, which would not be proper to record here, which made us admire and esteem him greatly, and as Mr. McClees truly says, "if he had faults, they were of the head and not of the heart."

F. G. WELLER.—"Frank Weller died on Saturday evening, December 8th, aged 45 years." Thus says a letter from a friend in Littleton, New Hampshire, the home of Mr. Weller. His disease, like that of Mr. Germon, was consumption, and his death was one which had for some time been expected, and was peaceful, with consciousness to the last.

Mr. Weller was one of those quiet, unobtrusive men who may be classed with those who are said to be "pleasant in their lives." We have enjoyed his acquaintance for a good many years, but all since he entered photography, in 1868. We believe his earlier years were devoted to carriage painting, but he was seized with the photographic fever, and took up the art as a partial means of livelihood-first to make studies for his paintings, and afterwards as a regular business. His life studies, or groups, are familiar to most of our readers, as many have seen them, and in that direction he seemed to excel very nicely. He painted his own backgrounds, and manufactured his own accessories, and made numerous very successful hits in his compositions, some of them having become very popular, and have reached a large sale.

His studio and works were in Littleton, N. H., and his business has steadily grown for a number of years, until it yielded him quite a handsome income per annum. He was a lover of his adopted vocation, and an enthusiast, which mainly accounted for his success. He leaves a wife and one child

to mourn his loss, together with a host of warm friends. We regret to see such valuable members of our profession taken away so early in life, and especially so as they have during their lives striven to advance rather than to degrade the art.

Scarcely was our little annual, *Mosaics*, closed for the new year with the record that death had thinned our ranks but little, when these two death notices came to our hands.

#### PRINTING WITH FATTY INKS

DIRECTLY FROM THE PHOTOGRAPHIC NEGATIVE.

BY DR. E. LIESEGANG.

FOR some time past much has been said concerning certain processes for printing with fatty inks directly from the negative, and the fact is patent that these processes are actually in use, and that they present important advantages for the reproduction of engravings, pen drawings, maps, plans, etc.

It is well known that to transfer a drawing to a lithographic stone or to a zinc plate, in order to transfer it into a typographic plate, the following process is employed:

First, a negative on glass is taken, from which a print is made on paper coated with bichromatized gelatin; the brownish image is covered with a uniform coating of fatty ink (lithographic transfer ink); by washing in water the ink is removed that covers the parts which are to remain white, the black lines remain, and a print in fatty ink is obtained which can be transferred to stone or metal.

Although this process has been improved by the use of a second coating of albumen, which gives greater delicacy, and although the results obtained by this and other analogous processes are already excellent, there can be no doubt that a more certain result in the reproduction of the drawing would be reached if it were possible to ink the negative itself, as all the inequalities of the surface of the paper, as well as those caused by the want of contact between the negative and the paper in the positive frame, would be avoided.

The Aubel process, worked on a large

scale in Cologne, is one of those to which I allude. Many experiments have been made to obtain results of this kind by acting upon the negative with the vapors of hydrofluoric acid, and by other means, but without discovering the secret that the owners of the process are unwilling to reveal.

Now the news reaches us that in the royal printing establishment at Berlin, negatives have been made that can be used for printing with fatty ink. Thanks to the director of this institution we are now made acquainted with the mode of operation.

A collodion negative is made upon an albumenized plate; whilst wet this negative is coated with a diluted solution of gelatin, to which has been added bichromate of ammonia. This coating is dried in a dark room. The negative is then exposed so that the light reaches the coating of gelatin only through the negative plate, and until the print of a brown color is seen on the coating of bichromatized gelatin. The plate is washed in cold water until the film no longer contains a trace of the bichromate, and is inked with a roller coated with lithographic transfer ink. By means of a sponge the inked film is washed with a solution of gum arabic containing a small quantity of gall.

Such are the necessary operations for transferring a photographic negative into a plate which can be used as a lithographic stone. It is undeniable that this process is of very great importance for photographic and engraving work, when the reproduction of line drawings is desired.

May we hope one day to see the reproduction of half-tones? The reply perhaps will soon be given.

#### OUR PICTURE.

WE have chosen for the embellishment to begin our fifteenth year, a picture that seemed to us quite seasonable and appropriate. It is intended to represent one of those old-time scenes, when after the heaped up harvest has been gathered in, and the husking is ended, and the frost has come, and the once busy harvesters, looking for something to employ their long evenings and weary days, are wont to gather in such groups as this, especially during the holiday season.

There are many of us who are none too old to remember such parties as this, where old and young were on common footing, and where the married and the single sang their songs together. Strange contrasts were here to be found, and our artist has striven to embody them in his picture, or some of them at least, certainly. We find here Whittier's young girl who as

"She sings by her wheel at that low cottage door,

Which the long evening shadow is stretching before,

With a music as sweet as the music which seems

To breathe softly and faint in the ear of our dreams.

"How brilliant and mirthful the light of her eye,

Like a star glancing out from the blue of the sky;

And lightly and freely her dark tresses play, O'er a brow and a bosom as lovely as they."

And while she with her admirers occupy the time before and after the feast with molasses candy pulling, and apple catching, and all those good old games, in sharp contrast near her sits the older member of the female persuasion, singing her prayer to Diana, as Mrs. Tiglee makes her say:

"Since thou and the stars my dear goddess decree,

That old maid as I am, and old maid I must be, Oh! hear the petition I render to thee,

For to bear must be my endeavor,

From the grief of my friendship all dropping around,

Till not one that I loved in my youth can be found.

From the legacy hunters which near us abound;

Diana, thy servaut deliver."

And on the other side we see the old bachelor indulging in his meditations, and listen to his song:

"Funny and free are a bachelor's reveries,
Cheerily, merrily passes his life;
Nothing knows he of commubial devilries,
Troublesome children and clamorous wife.
Free from satiety, care and anxiety,
Charms in variety fall to his share;
Bacchus's blisses and Venus's kisses,
This, boys, this is the bachelor's fare."

But as Goethe says,

"Life outweighs all things if love lies within,"

And such parties as this, it must be said, are often productive of much love.

"In the meanest hut is a romance, if you knew the hearts there:"

And we do not know how many romances we may be responsible for in suggesting such a group as this for our picture. Let us hope that it may be said of each fair maiden and master, too, who are given to such pleasures as are here depicted, that on some such occasion or other as this,

"Her heart hath found a home, and freshly all Its beautiful affections overgrew

Their rugged prop. As o'er some granite wall Soft vine leaves open to the moistening dew, A warm bright sun, the love of that young wife, Found on a hard cold breast the dew and

Found on a hard, cold breast, the dew and warmth of life."

But as all things earthly must end, so must such happy occasions as this always terminate. Whittier must have had that in mind when he wrote his touching poem of "The Huskers," which he ends thus:

"Half hidden in the quiet nook, serene of look and heart.

Talking their old times over, the old men sat apart;

While up and down the unhusked pile, or nestling in the shade,

At hide and seek, with laugh and shout, the happy children played.

"Urged by the good host's daughter, a maiden young and fair,

Lifting to light her sweet blue eyes, and pride of soft brown hair,

The master of the village school, sleek of hair and smooth of tongue,

To the quaint tune of some old psalm a husking ballad sung."

As a photograph, this group has a matter or two of interest to our readers concerning it. It was taken in front of a little log cabin, as will be seen, out in the air where the sunshine had full play upon it, and where the light could not be well managed. Therefore a huge muslin screen some forty or fifty feet square, was stretched over the group, inclining towards the source of light, and thus a very excellent modification of the light

was obtained, giving, as will be seen, a remarkably good out-of-the-skylight picture. The likenesses of the parties are all said to be excellent, and the light was almost as manageable as under a skylight. This makeshift was due to the ingenuity of one of our assistants, Mr. Robert J. Chute. We hope it may prove an interesting subject to our readers. Next month we will present a portrait of the Hon. John Welsh, our new Minister to Great Britain, and then will follow, we trust, some of the prize pictures.

#### OUR ADVERTISERS.

OUR readers will find upon referring to our advertising pages that they are considerably freshened up. We believe that they are quite as interesting, and sometimes as valuable, as are the pages of our letterpress; and at this season of the year it is usual for us to call attention especially to them.

As an evidence of returning good times you will notice particularly that a number of our old advertisers have commenced business again (the business of advertising), and we hope they will succeed.

Let us first call attention to the display of Messrs. Benjamin French & Co., 317 Washington Street, Boston, who are so well known as dealers in photographic requisites, and as agents of Voigtlander and Darlot lenses. They have increased their space this month, and occupy two pages; both should be read.

Our old friend, Mr. Charles W. Stevens, comes with his right-hand man, Mr. G. A. Douglass, to the front again, and presents a very shapely advertisement of the novelties which are for sale at the "Great Central." No doubt our readers who are convenient will flock around their standard very extensively.

Mr. J. C. Sommerville represents the life and backbone of the South and Southwest in our advertising pages, and brings two or three novelties to our attention, among which is Hall & Co.'s varnish, which experience has proven to be one of the most excellent things of its kind ever offered to the consumer. Mr. Sommerville has kindly sent us a sample of it, which we have tried with perfect satisfaction, since which time

we believe he has made further improvement in its production. No doubt all who need such an article will avail themselves of this opportunity. It will doubtless be sold by all stockdealers.

· Professor D. A. Woodward continues to bring to the mind of those who have enlarged ideas, or photographs to enlarge, the unrivalled solar camera, both for reflection and direct printing. It will be noticed that he obtained a medal at the Centennial Exhibition, as he deserved.

Messrs. Wilson, Hood & Co., 822 Arch Street, Philadelphia, are among the most enterprising of our stockdealers, and are special agents for the Ross and Steinheil lenses, the merits of which they display to advantage. They are so well known that it is needless for us to say anything in their praise. Try them once.

Messrs. A. M. Collins, Son & Co., 18 South Sixth Street, Philadelphia, are about the only manufacturers of cardboard worth considering, and although they have, as it were, a monopoly, so satisfactory is their method of conducting business, that no one is ever made to feel that there is any monopoly about it. They are always obliging and prompt, and the quality of their work is now unrivalled by any in the world, at home or abroad. There is no excuse for slovenly and bad quality of cardmounts now.

The Centennial Photographic Company should not be forgotten in the search for novelties, as no one perhaps is able to supply a greater number of beautiful things than they are. If photographers would try to sell these views, and push them, there is no doubt but what they could realize considerable for themselves.

Mr. G. Gennert, 38 Maiden Lane, New York, by persistent pushing of the S. & M. Dresden albumen-papers, single and extra brilliant, has secured an immense demand for them. It will be seen that Mr. Gennert's is also the headquarters for other important products useful in photography, and which are detailed in his advertisement.

Scovill Manufacturing Company, 419 and 421 Broome Street, New York, have made several important changes in their catalogues, prices, etc., recently, and as is well known, are headquarters for everything in

the line of staple and fancy articles used in photography. They are, without doubt, the largest house of the kind in the world, and if all their factories and branches were concentrated, it would make a tremendous establishment. Their goods go everywhere, and, as we saw by a foreign paper the other day, the American Optical Company's apparatus is greatly preferred abroad over any other.

Mr. C. Faser, 822 Arch Street, Philadelphia, is undoubtedly the headquarters for gilt frames. We have personally dealt with Mr. Faser for many years, and believe the quality of his goods to be unequalled. His patterns are tasteful and rich, and at the same time the best.

Mr. John L. Gihon still finds that his Opaque and cut-outs are very largely sold everywhere; and truly, two more useful articles among the lot of nick-nacks that are required for photographic production are not to be found. His Opaque should be found in every room of the studio, where light is liable to get in wrongly, and his cut-outs are indispensable in the printing-room.

Mr. Charles W. Hearn's Studies in Artistic Printing, and Mr. Bigelow's Artistic Photography, make companion volumes, which should be in every photographic operator's hands, and well studied. We commend them heartily.

Professor Robinson's straight-cut and revolving trimmers are praised wherever they go. Their price seems to be a little in their way, but the demand does not seem large enough yet to enable it to be reduced. This is not so essential, however, when we know that they are worth their weight in gold, and save their price once at least every week in an ordinary business.

Messrs. James F. Magee & Co., 108 North Fifth Street, Philadelphia, have ever since the birth of our magazine kept a standing advertisement in its pages, and have renewed for the year 1878. We have so often recommended their chemicals that we cannot do more now, unless it be to say that they were used entirely by the Centennial Photographic Company during last year, and are still.

Mr. Joseph Zentmayer continues to make

claim to the excellencies of his lenses for views and copying. His optical works, as is well known, are at 147 South Fourth Street, Philadelphia.

Hance's photographic specialties are now used very largely everywhere, and are for sale generally by dealers. A list of them is detailed on the first page of our advertising sheets, and those who have not tried them should do so.

Mr. G. Sauter, Philadelphia, attends to the wants admirably of those who need articles of taste and use in the way of passepartouts. His depot and factory are 138 South Eighth Street, Philadelphia.

Seavey, the background painter, last though not least, stands alone, unrivalled and unexcelled. It is wonderful to see what a business that man has built up by careful attention and good taste and prudent management. It is almost incredible that he should sell as many backgrounds as he does abroad, and that the imitations cannot reach him in style and quality. He continues at No. 8 Lafayette Place, New York, where, notwithstanding the mild weather, he is busily engaged in making snow scenes.

Added to all this comes the dealers' directory, which will be found to contain a list of those dealers in the various cities who are most prominent and most reliable, and with whom it will be found to your best advantage to deal. We recommend them all to you.

Please read our book advertisement.

#### PHOTOGRAPHIC NEWS.

THE Russian photographers, and others, are making effort to devise some means of prosecuting aerial photography. One great difficulty in the way seems to be to properly preserve the principles of aerial perspective.

A CORRESPONDENT of the News says: "Never filter a negative-bath solution; instead, first sun it, and when clear draw off by means of a siphon, the short leg of which should be sufficiently clear of sediment as not to allow it to flow up."

The same correspondent says: "Hypo, when used for fixing prints, should, when dissolved, be neutralized with carbonate of lime (chalk) in powder, in preference to

either potash, soda, or ammonia, and very carefully filtered. Small spots of non-fixation are very often caused by little particles of undissolved substances, which being held in suspension, fix themselves upon the surface of the prints when placed in the solution, and so wherever that is the case, prevent the action of the hypo upon the silver."

A COMPLAINT is made in the News that the present disposition of photographers is to print too darkly. We think there is a tendency to this fault in our own country, and photographers mistake a rich tone for a dark print, or vice versa. It is possible to secure plenty of richness of tone, and all of the qualities of the negative without overprinting, by printing more slowly under glass.

Mr. J. R. Johnson, the indefatigable carbon worker, has patented a long list of further "improvements." This process seems to be fading in the old country as well as in this; in one it is dying a natural death, and in the other it is being strangled to death by patents.

THE "Peripatetic Photographer," in the British Journal, recommends the use of yellow instead of white powder, for doing away with the effects of freckles on the face. The beneficent effect upon red noses of this yellowish powder is commended in the highest terms.

Dr. E. Stebbing discontinues his correspondence with the *British Journal* on account of his health. For the same reason his letters to us are not as frequent as we would like, though we still expect to receive them occasionally. Mr. W. R. Harrison, an old correspondent of the *Journal*, takes Professor Stebbing's place.

THE British Journal gives the following method for mounting photographs upon thin mounts without cockling: "After washing, the prints are dried, and the albumen surface rubbed slightly with wax. This may be conveniently done by using a mixture of wax and methylated ether of the consistency of butter; it should be soft enough to rub easily without penetrating the print, and rendering it transparent. After waxing, the print is immersed in clean water until thoroughly swelled, when the albumen side is pressed

into close contact with the washed glass by means of the squeegee, and placed under slight pressure till thoroughly dry, and it will then leave the glass in a perfectly smooth state, and with a high gloss. If the gloss be an objection, instead of using glass let two prints be pressed into contact, face to face, by means of the squeegee or a warm, smooth iron, and placed under pressure between folds of clean, dry blotting-paper. When dry they may be separated, as in the other case, and will be found to be perfectly flat. Prints so treated can be attached to mounts by the edges only, with india-rubber, and will present as even an appearance as if mounted on eardboard."

Mr. Andrew Bowman, in the British Journal, discussing the claims of photograplay to be considered a fine art, says: "It is objected that there is no individuality in a photograph. There is individuality in good photography. If you put three good operators into the same glass house, with the same chemicals, the same lens, the same subject, and the same conditions of light, they will each produce pictures, it may be, equally meritorious, but distinctive of their individual modes of manipulation, just the same as painters form a distinctive mode of manipulation; or you can point to a picture on the walls of an exhibition, and say that it is done by so-and-so. It is markedly so in landscape. Photographers who are familiar with the style of the artist, can distinguish Wilson's from Braun's, Braun's from Bedford's, and Bedford's from England's, and the more photographers study art principles, the distinctiveness and individuality of their work will become more and more manifest than they are at present."

SIMPLE EXPEDIENT FOR SECURING DIA-PHRAGMS.—"An annoyance I have often experienced when working outdoors with lenses having loose stops, has been the tendency of the latter to drop out of their place in moving the camera from one point of view to another. This accident is more likely to occur if the lens is so serewed into its flange that the opening for the stop is inclined from its proper position. With lenses screwed into their proper flanges this should not be the case, as the latter are fitted to the camera front with a view to the perpendicular position of the diaphragms. When, however, an adapter is employed, the lens, if serewed home, often does not assume the proper position with reference to the stop. This defect might be remedied by screwing the lens a portion of the turn; but a better plan is to employ an india-rubber band as a safeguard. A slit in the band allows it to be drawn over the projection of the stop and round the tube of the lens. This band answers a double purpose. It serews the stop in its place, in any position of the lens, and prevents the access of diffused light to float through the opening of the diaphragm. Recently I had a number of plates fog from this cause, which I detected when examining the interior of the camera for cracks in a bellowsthe suspected part."—I. D. LYSAGHT, B. J.

A VERY interesting meeting of the Photographic Society of Great Britain was held a short time ago, the principal business of which was the distribution of the medals to the respective exhibitors to whom they had been awarded by the jurors appointed for that purpose. The addresses made by the President, who delivered the medals, and responses by the different recipients, were very interesting and pleasurable. The competition was very satisfactory, and those who received the medals won them not without some little contest, which of course adds to their value.

SIG. SCOTELLARI seems to be gaining reputation in England. A correspondent of the British Journal says, that recently Scotellari paid him a visit, and experimented with his auxiliary light. The half-double plate was exposed fourteen seconds, with the usual cap the other half, under the same conditions, was fully exposed seven seconds, and after the sitter had left his position, an exposure of four seconds through the violet medium took place; the negatives produced in this manner were developed, fixed, and printed without retouching in the ordinary way, and those from the negatives exposed the shortest time, were in no way inferior to the others, thus proving very successfully a gain of fifty per cent. in time of exposure.

At a late meeting of the Manchester Photographic Society, the Secretary read the

following very interesting letter from Mr. J. B. Payne, as follows:

"Dear Mr. Adin: I herewith send you two prints as promised. I have long been interested in the matter of fading photographic prints, and had come to the conclusion that all conditions being properly fulfilled, a silver print was just as permanent as any other, but these conditions imply that you must begin with the manufacture of plain paper, and go right through the various processes from beginning to end with the greatest possible care.

"Then again I believe there is some sort of an unexplainable influence on the part of the negative; some negatives, although appearing very good ones, do not produce such prints; and again, I have oftentimes thought that a print taken from a weak negative faded soon. In the matter of toning solutions I had petideas, and as regards 'washing after fixing,' I am sure that it is possible to, and that operators very often do wash too long. A great deal depends also upon the quality of the solution that a print is mounted with, and the materials it is mounted upon. I was very much interested by a paper given by Mr. Brothers, at one of the Society's meetings sometime ago; and, reasoning from what I saw and heard on that occasion, and also from my own experience, and from the large amount of information which I have obtained from photographers, both professional and amateur, I had come to the conclusion that the permanent silver print depended upon the purity of the materials employed and the careful manipulation of the operator; but the two prints I send you herewith completely upset my theories. They were printed by Mr. Dickson, and on his assurance that he used extraordinary care with them. Mr. Dickson is a gentleman of considerable experience, and is a most painstaking operator. He was interested in what I had mentioned to him from time to time regarding the remarks I made to him not long ago, he kindly printed these two pictures for me. In a note sent to me this week, Mr. Dickson says: 'I should have expected a long tenure for at least the toned one.' I inclose details of the particulars.

"I am, yours faithfully,

"J. BUXTON PAYNE."

Particulars relating to the two prints:

"They are printed from the same negative, on the same albumenized paper. was pink-tinted. Both floated on the same sensitized bath; printed to exactly the same depth; washed together; fixed and washed together. In fact they agree in every particular with each other as precisely as possible, except that one is toned and the other is not toned. The one that is toned is No. 1, and it was toned with chloride of gold and carbonate of lime. They were printed in the second week of July of this year. They were both mounted in precisely the same manner; that is by touching the margin only a quarter of an inch all around the mounting solution, and being on the same mount have consequently been exposed to the same conditions of atmosphere and light."

A Model Catalogue.—At the exhibition of photographic art recently held in Nuremberg, each visitor received upon entering a catalogue, of which we are told that it was a work of art, illustrated by good specimens of every kind of printing that was shown in the exhibition, and the processes exhibited there in active operation appear to have been numerous. No exhibition (says Dr. Vogel), has ever been provided with such a catalogue, which was illustrated by an Aubeldruck; by the views of Nuremberg by Hahn, Biede, and Schmidt; by genrè pictures, by Leyde and Muschler; by views by Pruden, and other artists, of Nuremberg; by a relief print by Bruckmann, of Munich; by a Lichtdruck by Arnold & Zettler; and by quite a variety of pictures by other and non-photographic processes, such as steel and copper-plate engraving, wood engraving, and lithography.

THE Turkish government has had photographed a number of the victims, and groups of victims, survivors of the late outrages in the district of Yani-Zaghra, Kezanlikact, consisting chiefly of women and children, and the photographs display the swordgashes, lance-thrusts, and bullet wounds, which these unfortunates have received. A collection of them is said to be very horrible. Another argument against the abominations of war.

#### Editor's Table.

PICTURES RECEIVED.—From some mysterious person, too modest to put his name upon his elegant work, we have received five very beautiful stereographic pictures of river scenery, which are charming. They are accompanied by two portraits of a gentleman cutting out prints in some peculiar manner. If the author of these pictures would kindly make himself known to us we should be obliged, as we have something to say to him. He ought not to be ashamed to acknowledge such work as this.

From Mr. Alexander Martin, Boulder City, Colorado, we have received some very interesting views of Rocky Mountain scenery, which are as fine as Braun's or England's Alpine views, not only as photographs but as careful selections of such delightful scenery.

From Mr. T. N. Gates, Westboro', Mass., some very excellent examples of photographs made in his new studio. Mr. Gates retains all of his old vigor and skill, and his tramps in Europe and elsewhere, during which time he forsook photography, seem to have done him no harm; his pictures of children are particularly fine.

From Mrs. Lydia J. Cadwell, successor to Gentile, in Chicago, we have received some cabinet size pictures, showing very excellent judgment in posing. Mrs. Cadwell, we understand, is one of the most prosperous photographers in Chicago.

From Mr. Frank Jewell, Scranton, Pa., some cabinet size pictures of skating scenes. We have never seen any pictures of this style which show more action than these figures do. One represents a young lady under full sail along the ice; another a young man in the act of throwing a snow-ball, while the snow is falling; and a third, of a group entitled "Fastening on the Skates." They are all excellent, and we suppose are a forerunner of what Mr. Jewell intends to send in competition for the gold medal prize.

We also have specimens of their work from the following: J. PAUL MARTIN, Boone, Iowa; E. P. Libby, Keokuk, Iowa; B. W. Boss, Mechanicsburg, Pa.; and J. P. Brown, Tecumseh, Michigan. All of the gentlemen make far better work than they did but a few years ago.

One of the pleasantest surprises we have had for a good while, was caused a few days ago by the reception from Mr. G. M. Elton, of Palmyra, N. Y., of some exquisite Promenade photographs of quite an original style. The albumen paper

occupies the usual space upon the card, but the actual picture, the photograph, all being full standing, occupies only the limits of about 2 x 54 inches. Within this space a pretty figure, and tasteful background, and choice accessories, are all admirably arranged and artistically lighted. so as to get the most charming effects. The remaining portion of the print is delicately tinted or flashed in the sun, and the whole effect is as pretty as anything we have seen for a long time. We understand that Mr. Elton also intends to compete for our prize, and that our readers will sooner or later have an opportunity to see a sample of this original and beautifully designed picture of his. He certainly is entitled to the highest praise for their production.

From Mr. Julius Hall, Great Barrington, Mass., we have received some interior and exterior views from negatives, we believe, made for our prize competition of last year, but which fell through on account of the want of competitors. Among them is one of the loveliest river views, and another of a little house, which makes us want to give up business and retire to its shades forever more. It is one of those tasteful examples of architecture which American wood and woodbinery, with tasteful painting, make up; and its likeness has been caught in the most beautiful light, and is splendid throughout. Mr. Hall is one of our best landscape photographers.

ITEMS OF NEWS. — Mr. HENRY Howson, the eminent patent lawyer, so well known to our readers, has issued a very interesting pamphlet on the all-important question, "Shall the Patent Office Models be dispensed with?" His argument is very apt, and fully against the use of models.

Mr. CHARLES D. MOSHER, of Chicago, held a very elegant holiday reception at his studio on Saturday afternoon and evening, December 15th. Among the chief attractions were some paintings by Professor Gregori, who is now painting for Mr. Mosher.

Mr. C. S. Roshon has returned to Harrisburg, and occupies the Keet gallery at 408 Market St.

Messrs. Moore Bros., of Springfield, Mass., have a long article in the *Journal of Commerce* devoted to their studio, which speaks in the highest praise, and deservedly so, of these gentlemen.

Mr. A. M. Allen, of Pottstown, Pa., comes in

for a good share of commendation of his work in a recent issue of the *Miners' Journal* and the Pottstown *Chronicle*. Mr. Allen, we believe, has struggled with silver in that city for over twenty years; we hope he has his pockets full of gold by this time.

Mr. H. R. Marks, Austin, Texas, obtained five prizes at the recent State fair held in that city, for his display of work.

Mr. George B. Reiman, as we predicted, has returned to his old love, and assumed his former position with Messrs. Bradley & Rulofson, San Francisco, California.

We have a copy of a little advertising sheet, devoted to photography, called the *Skylight*, published by M. OLIVIER, New Brunswick, N. J.

Gratifying.—Mr. G. W. Chase, of Newark, Ohio, in sending for *Mosaics* for 1878, says: "I have regularly purchased *Mosaics*, and always find in it some good item worth more than the cost of it." *Mosaics* is unusually good this year.

Mosaics, 1878, has been sent, cloth bound, to all contributors whose addresses we have. Will the author of the valued article on "Photographing Interiors" please send us his address?

PHOTOGRAPHIC SOUVENIR OF THE CENTENNIAL EXHIBITION .- Under the above general title, J. B. LIPPINCOTT & Co., Publishers, Philadelphia, in connection with the Centennial Photographic Company, have issued a Series of Four Portfolios, containing a choice selection of elegant photographs of the exteriors and interiors of the Exhibition Buildings, and of the most striking objects, in groups and separately, of the Exhibition. There are two sets of a large size (17 x 14), one embracing twenty views, the other fifteen, at \$1.00 each; and two sets of a smaller size (14 x 111 inches), one embracing twenty and the other fifteen views, at 50 cents each. No subject is duplicated in the four sets. In themselves they are works of art, besides being valuable and interesting souvenirs of our great Centennial celebration.

Photographers who desire to purchase these souvenirs can be supplied by us at trade discount, which will be made known to applicants.

OUTLINES OF CHEMISTRY.—We have pleasure in announcing that we have arranged with Prof. Henry McIntire, of Lafayette College, Easton, Pa., to supply our readers with a series of articles on this subject. We believe these articles will

be in a direction in which our photographers need information, and that the gentleman who has undertaken the work is eminently able. We commend a careful reading of his contributions from month to month by all those who are willing to be informed.

From Scovill Manufacturing Company we have a revised price-list of stereoscopes and grapho-stereoscopes, the exclusive right to manufacture which they have purchased, under reissued letters-patent, dated April 24th, 1877, and the claims of which are as follows:

- "1. The combination of a lens-holder hinged to the bed-plate of a stereoscopic instrument, with a diaphragm hinged to the said bed-plate, substantially as described.
- "2. In combination with a stereoscope and its bed-plate, a movable, adjustable, sliding picture-holder, and a separate friction-clutch or clamp, substantially as described.
- "3. In combination with a stereoscope and its bed-plate, a movable, adjustable, sliding picture-holder, and an adjustable clutch, consisting of a set-screw or equivalent mechanism, substantially as described.
- "4. In combination with a stereoscope and its bed-plate, a movable, adjustable, sliding picture-holder, and a handle whereby said pictureholder may be readily adjusted, substantially as described.
- "5. In combination with a stereoscope and its bed-plate, a movable, adjustable, sliding picture-holder, a handle, and an adjustable frictionclutch or clamp, substantially as described.
- "6. In combination with a stereoscope and its bed-plate, a movable, adjustable, sliding pictureholder, a handle, and the vertical picture-supporting wires, N, substantially as described.
- "7. The combination, in a stereoscopic instrument, of a movable lens-holder, a movable diaphragm, and a sliding picture-holder, whereby the stereoscope can readily be packed in a narrow compass for transportation, substantially as described."

Any friction-clutch or any apparatus bearing against the bed-plate of a stereoscope or graphoscope, and attached to the picture-holder, will be an infringement of this patent.

We can personally speak in commendation of the excellent quality of the grapho-stereoscopes produced by those gentlemen, not only from actual use, but from the inspection of a great many of them; they are substantial, and at the same time beautifully made, and should be preferred.

# Hance's Photographic Specialties

#### Hance's Bath Preservative.

A sure preventive of pinholes, stains, &c. It preserves the bath in good working condition, and will be found worth its weight in gold. \$1.00 per bottle.

#### Hance's Double Iodized Collodion.

The peculiarities of this Collodion are good keeping qualities, its improvement by age, and the richness of effect produced in the negative, the film being perfectly structureless. \$1.50 per lb.; 80 cts. per  $\frac{1}{2}$  lb.

#### Elbert Anderson's Portrait Collodion

Is made according to the formula used by Mr. Anderson in Mr. Kurtz's gallery in New York. It is especially adapted to portrait work. \$1.75 per fb.; 90 cts per  $\frac{1}{2}$  fb.

#### Hance's White Mountain Collodion

Is adapted more especially to outdoor work, and for quick working, delineating foliage, frost-work, or sky, it stands unrivalled. It is made after the private formula used by that celebrated mountain artist, B. W. Kilburn, of Littleton, N. H. \$1.50 per B.; 80 cts. per ½ b.

#### Curtis' Niagara Falls Collodion

Is another used for landscapes. The wonderfully beautiful views made by Mr. Curtis, of the great cataract, with this collodion, have a world-wide reputation. \$1.50 per \$1.50 per \$1.50 cts. per \$1.50 pe

#### Trask's Ferrotype Collodion

Is made especially for positive pictures. Mr. Trask has no superior in this class of work, and this collodion is made after his formula. \$1.50 per lb.; 80 cts. per  $\frac{1}{2}$  lb.

#### Hance's Peculiar Portrait Collodion

Is peculiar in that it is prepared without bromides, and is adapted for use with Black's acid bath. Formula on the bottle. \$1.50 per fb.; 80 cts. per  $\frac{1}{2}$  fb.

#### Cummings' Grit Varnish

Gives a very fine surface for retouching. 40 cts. per 6 oz. bottle.

#### Hance's Silver Spray Gun Cotton.

Prepared with great care, and free from acid, very soluble, gives good intensity so that no redevelopment is necessary, gives perfect detail, and a film pure and structureless. 50 cts. per oz.

#### Hance's Delicate Cream Gun Cotton

Is adapted to those who like a very delicate, soft-working collodion, giving all the modelling, especially in the Rembrandt style, and with light drapery. Its sensitiveness renders it particularly adapted for children, or any work that requires short exposure. 80 cts. per oz.

#### Gill's Concentrated Chromo Intensifier

Is intended to strengthen the negative. It imparts a beautiful tone and gives excellent printing qualities. 50 cts. per bottle.

#### Hance's Ground-Glass Substitute

Is simply what its name implies, a substitute for ground-glass for any purpose that is used for in the gallery—for vignette glasses, for a retouching varnish, for softening strong negatives, for the celebrated Berlin process, for ground-glass for cameras, for glazing sky and side lights, for obscuring studio and office doors, for printing weak negatives. 50 cts. per bottle.

(READ SUCCEEDING PAGE.)

# HANCE'S

# Photographic Specialties



## AHEAD!



#### HIGHEST PREMIUM AWARDED

AT THE CENTENNIAL EXPOSITION

Having received the Highest Award for Photographic Specialties, I feel more confidence than ever in offering my manufactures to the Photographic fraternity. My exhibit was an extremely modest one, being taken from stock, put up in original packages without any attempt at display. Yet it carried off the prize over all the exhibits put up in cut glass decanters with ribbon-tied stoppers, proving that the medal was awarded for MERIT ALONE.

# TRY GROUND-GLASS SUBSTITUTE.

ONE OF THE MOST USEFUL THINGS MADE.

READ THE FOLLOWING:

MR. A. L. HANCE.

Dear Sir: I am pleased to inform you that the gallon of Ground-Glass Substitute came safely and is just what I wanted. The surface for retouching which it gives is superb.

I shall want more of the same sort when this supply is exhausted.

Very truly yours,

W. G. C. KIMBALL,

Concord, N. H.

FOR SALE BY ALL STOCK-DEALERS.

NO RETAIL ORDERS FILLED. ORDER OF YOUR DEALER.

ALFRED L. HANCE, Philadelphia.

# CHAS. W. STEVENS,

# PHOTOGRAPHIC WAREHOUSE,

229 & 231 State Street,

## CHICAGO.

SEND for our CATALOGUES, PRICE LISTS and INSTRUCTORS.

Chas. W. Stevens. G. A. Douglass.

# BEATRICE MINIATURE

FULL REVISED INSTRUCTIONS SENT FREE.

## Webster's

Liquid Concentrated

WATER COLORS,

For the BEATRICE MINIATURE. PRICE, \$1.50 PER BOX.

Convex Glass. Oval Velvet Cases.

SILK VELVET PASSEPARTOUTS. FIRE-GILT EASELS.

LARGEST STOCK. LOWEST PRICES.



"For Utility and Fitness."

#### AWARDED A MEDAL

At the Centennial Exhibition, 1876.

Do not Waste Time with a Knife and Glass, but try Prof. Robinson's invention.



# Robinson's Photograph Trimmer

IS A SUBSTITUTE FOR A KNIFE

FOR TRIMMING PHOTOGRAPHS, AND DOES THE WORK MUCH MORE EXPEDITIOUSLY AND ELEGANTLY THAN A KNIFE.

#### IT SAVES TIME, SAVES PRINTS, AND SAVES MONEY.

It does not cut but pinches off the waste paper, and leaves the print with a neatly beveled edge which facilitates the adherence of the print to the mount. Try one, and you will discard the knife and punch at once. For ovals and rounded corners it is worth its weight in gold.

#### A Trimmer and Ten Inches of Guides Mailed for \$3.50.

(Oil the Wheel Bearings with Sewing Machine Oil.)

# Robinson's Metallic Guides,

#### FOR USE with the ROBINSON PRINT-TRIMMER.

These Guides are Made of Stout Iron and are Turned in a Lathe, so that they are Mathematically True.

OVAL, ROUND, ELLIPTIC, and SQUARE, of all sizes; various shapes for Storeoscopie work, Drug

Labels, etc., etc.
We have the following regular sizes always on hand at 10 cents per inch, the longest way of the aperture, the fractions counting as one inch.

Special sizes made to order at 15 cents per inch, the longest way of the aperture.

#### REGULAR SIZES:

	OVALS.		Square	or Round-Co	rnered.
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$2\frac{5}{8} \times 3\frac{5}{8}$	5 x 7	7 x 9	For	Stereograph	ıs.
$2\frac{7}{8} \times 4\frac{1}{4}$	$5\frac{1}{4} \times 7\frac{1}{4}$	$7\frac{1}{4} \times 9\frac{1}{4}$	Arch Tops.	Round-Cornered.	Round.
$3\frac{3}{8} \times 4\frac{3}{8}$	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3\frac{1}{16} \times 3\frac{3}{4} \\ 3 \times 3$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 x 3
$3\frac{3}{8} \times 4\frac{5}{8}$	$5\frac{5}{8} \times 7\frac{5}{8}$	$7\frac{3}{4} \times 9\frac{3}{4}$	3 x 3	š x 3	

The above sizes suit the Collins Card Mounts, and photographers knowing that they can always be had at the low price of ten cents per inch, would do well to make their sizes accord, as orders can also be filled more quickly. Ten days is required to make special sizes.

> EDWARD L. WILSON, Manufacturer's Agent, PHILADELPHIA, PA.

FOR SALE BY ALL DEALERS.



# ROSS' Portrait and View Lenses

We have now successfully introduced to the American Photographers the Ross Lenses, and by our increased sales we know they are appreciated. At the Centennial Exhibition many fine photographs were exhibited by photographers, and ourselves, made with the Ross Lenses, which attracted great attention.

While Ross & Co. are the oldest manufacturers of Photographic Lenses in existence, they also keep up with the requirements of the fraternity, by constantly manufacturing new combinations and improving on those already in existence. They have lately perfected, and will soon furnish us stock of, a new series of Card Lenses, extra rapid, peculiarly adapted for babies, and people who will not be quiet. We will give notice of their arrival.

#### WE HAVE NOW IN STOCK

Portrait Lenses, from 1-4 to 15 x 18.

Cabinet Lenses, Nos. 1, 2, and 3.

Card Lenses, Nos. 1, 2, and 3.

Triplets, Nos. 1, 2, 3, 4, 5, 6, and 7.

Symmetricals.

Rapid Symmetricals.

Instantaneous Doublets, all sizes.

Medium Angle Doublets, all sizes.

Large Angle Doublets, all sizes.

Stereographic Lenses, all sizes.

Numerous testimonials pronounce them to be the best, as well as the cheapest Foreign Lenses ever offered to the American Photographer. We will mail price-list on application, and promptly fill all orders.

PART OF THE ROSS CENTENNIAL LENSES ARE STILL UNSOLD.

# Steinheil's Sons'APLANATIC Lenses.

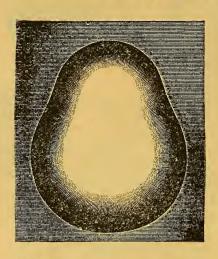
We now have a full stock of these Celebrated Lenses, at the following prices:

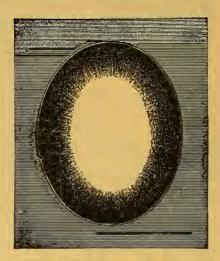
No. 1-1-4 size, .		$3\frac{1}{2}$ in	ch focus,				\$25	00	No. 5-10	-12	size,.	13½ inch	focus,	\$70	00
2-1-2 ".															
3-4-4 " .		7 6	"				45	00	718	-22	" .			200	00
4-8-10 ".		104 '					60	00	820	-24	" .			350	00
Nos. 1 and 2 are in matched pairs for Stereoscopic Work.															

We feel sure that at least one of these lenses is needful for the successful prosecution of your business, and so solicit your orders.

Wilson, Hood & Co. SOLE AGENTS FOR 822 Arch St., Philadelphia, Pa.

## **WAYMOUTH'S**





# Vignetting Papers

ARE MADE OF TWO SHAPES, as shown in the drawing above. They consist of finely gradated lithographed designs, mounted on protecting sheets of non-actinic paper, and are the lightest, neatest,

and best means of producing vignette pictures ever offered.

The quality of the "papers" has been much improved by the substitution of a peculiar French, fibrous, hard calendered paper, which is not only less opaque but has other qualities which produce quickly the most lovely and soft vignettes possible. We consider this a great improvement, as do others to whom we have sent samples. Below we give a testimonial from Mr. Ormsby, who has sent us also some exquisite vignettes.

The package of Vignette Papers has been received and tried; they are just the thing. They are a great improvement over the others; they will print in a little more than half the time required for the others, and the results are everything that can be desired, as you can see by samples inclosed. Please fill my order and send bill. I like the pear-shape best. Send E. D. ORMSBY, Chicago. them all that shape.

#### FROM PROFESSIONAL AND AMATEUR PHOTOGRAPHERS.

"First-class."—"The sample sent answers perfectly."—"I consider them first-rate articles."—"They answer the purpose admirably."—"They are the best vignetters I have ever had, and as you can print in full sunlight, they are a great saving of time."—"They could not be better, oblige me with another packet."—"I find them excellent, giving much softer pictures than the old way."—"I have tried one of the Vignette Papers, and like it much; send me packets two and three."—"I am much pleased with them, and shall thank you to send me another packet."—"I did not need any copies of testimonials, having well-known by experience that your Vignette Papers were superior to anything I have ever used."—
"I found those you sent before excellent."—"Vignetting Papers received and tested; can't be beat. I use by cutting an opening in a piece of cardboard and tacking to the printing-frame, when I am ready for printing vignettes in the very best manner."—"Waymouth's Vignette Papers I have tried, and they are just what I have been wanting for years."

Any number sent on receipt of price, by any stockdealer, or by

EDWARD L. WILSON, Manufacturer,

(See opposite page.)

PHILADELPHIA.

ASK YOUR DEALER FOR THEM.

# WAYMOUTH'S VIGNETTE PAPERS.

(DESIGNS COPYRIGHTED.)

of all pictures the winnette is the most artistic

When properly printed. But the clumsy devices generally in use for printing them, or rather for blending the shading about the figure, produce but very few really artistic vignette pictures. Either the shading is too intensely dark, not gradated in tint at all, or it shows an ugly direct, decided line, which is very repulsive. The shading should blend gradually from the dark tint nearest to the figure off into the white background. The results are then soft, artistic, and beautiful. The easiest and best way to secure them is by the use of

## WAYMOUTH'S VIGNETTE PAPERS.

THEY ARE NOT CLUMSY; DO NOT BREAK; ARE ALWAYS READY; COST BUT LITTLE,
AND ARE EASY OF APPLICATION TO ANY NEGATIVE.

#### They need but one adjustment to print any quantity.

They entirely do away with all the old and troublesome methods, either wood, metal, or cotton.

Eighteen sizes are now made, suiting all dimensions of pictures from a small carte figure to Whole-size, Victorias, Cabinets, &c. They are printed in black for ordinary negatives, yellow bronze for thin negatives, and red bronze for still weaker ones. Directions for use accompany each parcel.

#### PRICES:

In parcels containing on	e of e	ach size, N	os. 1	to 15, ass	orte	d colors, .						. \$3	81	00
Assorted sizes and colors	s, by 1	numbers, pe	er pa	ckage of f	iftce	n,							1	00
Nos. 1, 2, 3, 4, and 5, as														
" 6, 7, 11, 12, and 13	"	"	"	Large Ca	rtes	and Victoria	as, by	num	ber,	per	doz	٠,		75
" 8, 9, 10, 14, and 15	"	"	66	Cabinets	and	Whole-size,		"		66			1	00
" 16, 17, and 18,	"	"	66	Half	"	"		66		66			1 :	25

#### (SEE OPPOSITE PAGE.)

When ordering, state the number and color you want.

#### EDWARD L. WILSON, Manufacturer,

116 North Seventh Street, Philadelphia.

ASK YOUR DEALER FOR THEM.

## WE STILL HAVE

FOR SALE LOW, THE FOLLOWING USED GOODS:

### Hermagis Lenses.

Three Cabinet size, extra quick, . \$100 00 | Two Card size, extra quick, . . . \$50 00 Two " quick, . . . . 40 00 At 33\frac{1}{3} per cent. discount.

## Bergner's Stereo. Print Cutters.

One Centennial size, and one ordinary size.

# Printing Frames,

A lot of 5-8, 8-10, 10-12, 13-16, 20-24 Printing Frames, American Optical Co.'s make, very low, in lots. Also, our

## Surplus Morrison Lenses.

ALL GONE.

Peerless Lenses.

ALL SOLD.

# American Optical Co.'s Boxes and Holders.

Imperial Boxes, 8-10, double swing. Portrait Boxes, 8-10, 10-12 and 14-17. Venus Boxes, 8-10 and 10-12, double-swing.

View Boxes, stereo., 8-10, 10-12, 14-17, 20-24, double-swing.

As most of our boxes were supplied with two holders, we also have a quantity of single holders for the above boxes for sale cheap.

The lenses were made ESPECIALLY for us and we will GUARANTEE every one of them. Witness our own work done with them.

The apparatus is all in good working order, some of the boxes are but slightly stained, and bear no other evidence of having been used.

## All these instruments and apparatus for sale at 25 per cent. discount from manufacturers' regular prices. Better price when a lot is taken.

Sent C. O. D., with permission to examine and try, if partial remittance accompanies order.

#### CENTENNIAL PHOTOGRAPHIC CO.,

Belmont Avenue, International Exhibition, Philadelphia, Pa.

## Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

For Sale.—A fine gallery, in a town of 2500 inhabitants, and no opposition within twelve miles. First-class trade. Good reasons for selling. Address F. H. Clark,

Minonk, Ills.

# The Wonderful Euryscopic Lens. See Advertisement.

#### EURYSCOPE.

A.C. North, Toledo, Ohio, writes, Oct. 1st, 1877: "I consider the Euryscope Lens you sent us the finest for the purpose you claim it for to be used. I have just tried it; it works quick, sharp, and gives no flare or marginal aberration. The finest lines are rendered with the greatest distinctness and accuracy, it covers sharp to the edge larger plates than it is listed for."

Wm. H. Roads, Philadelphia, Pa., writes, Nov. 30th, 1877: "I send you by mail to-day a 14x17 photograph made with the new No. C. Euryscope, which will speak for itself. We have not done much work with new Lens, but what work we have done with it gives great satisfaction, and I can cheerfully recommend it to any one desiring a good instrument for general work."

L. Moberly, McKinney, Texas, writes, Nov. 23d, 1877: "The No. 2 Euryscope Lens received. I have just made an 8 x 10 group of seven persons with it; time twenty seconds, at half-past three in the afternoon, and cloudy at that, but all is perfectly sharp and crisp. I have tried a great many lenses, but this surpasses them all, and I could not ask a lens to do more. I feel under many obligations to Voigtlander & Son for the introduction of so valuable a Lens."

We have just received a good supply of all sizes of the Euryscope Lenses.

Benj. French & Co., Boston, Mass.

#### Waymouth's Vignette Papers.

For SALE.—The Lake Shore Studio, in the beautiful village and summer resort of Skaneateles, New York; only gallery in town. Rent low; good north-light; rich farming country; will be sold cheap for eash. Main reason for selling is poor health. For further particulars address the proprietor.

O. H. WILDEY, Box 43, Skaneateles, Onondaga Co., N. Y.

#### Hance's Photographic Specialties. See Advertisement.

Voigtlander & Son's new Euryscope will be found the most useful Lens any one can have for groups.

Photograph Gallery for Sale.—First class, only \$300; nicely furnished; first floor; rent low; gas, and running water; 4000 negatives; population, 10,000. Also for sale, 6-inch Entrekin Burnisher, \$15.00; 8 x 10 Am. Op. Co.'s Imp. Box, \$35.00; 19 x 24 Dry R. Dish, \$6.00. Rare chance.

Address, with stamp, Artist, Box 723, Middletown, Orange Co., New York.

## The Wonderful Euryscopic Lens. See Advertisement.

Burrel's Chart and Hints to Patrons.—Your gallery is not complete without them. For particulars, see advertisement in January, February, and March, 1876, issues of this journal. Price, \$1.25, unmounted, by mail, or by express, mounted.

Lantern Slides, \$5 per dozen.

USE WAYMOUTH'S VIGNETTE PAPERS.

#### SEAVEY'S

NEW

#### BACKGROUNDS AND ACCESSORIES

FOR THE

#### 1877-FALL AND WINTER CAMPAI GN.-1878

The newest fashionable Backgrounds introduced by New York Photographers, are

#### Seavey's Snow Landscapes,

Price, per square foot, 25 cents.

Novel and superb pictures produced by using the above, in conjunction with our Winter Foregrounds. Sure to attract customers.

#### Seavey's New Interiors.

Rich in design and fine in execution, at from 25 to 30 cents per square foot.

Seavey's Antique Cabinets, never before offered to the public. Rich in design, . \$40 00 Seavey's Fireplace and Cabinet, combined, an invaluable accessory, . . . 50 00 Seavey's Antique Chairs, . . . . . . . 12 00

#### SARONY, KURTZ. MORA.

use no Backgrounds but Seavey's.

Designs copyrighted.

Headquarters for leading styles in Photographic Backgrounds and Accessories,

> L. W. SEAVEY'S Scenic Studio. 8 Lafayette Place, New York City.

#### Waymouth's Vignette Papers.

THERE is a sign on one of the stores in New York that reads thus:

> "The poorest goods sold, The highest prices charged. Oh, how this world Is given to lying!"

I agree entirely with these sentiments. ANDREW H. BALDWIN, Dealer in Photographic Materials, No. 1 Chambers Street, New York. Send for my Price List of 48 pages.

#### Wilson's Lantern Journeys. See Advertisement.

THE undersigned is open for engagement, and as is well known, is capable of undertaking any branch of the business. Twenty years of experience in painting, posing, operating, and printing.

JOHN L. GIHON. 116 N. Seventh St., Phila.

#### PORTRAIT LENSES AT THE CENTENNIAL.

Office of WILSON, HOOD & Co., 822 Arch Street.

Philadelphia, Dec. 27, 1876.

Centennial Photo. Co.

Gents: In Anthony's Bulletin for December, we see a communication from Mr. Notman. stating that the Dallmeyer Lenses were used exclusively by your Company for portraiture. If such is the case, will you kindly inform us as to what use you made of the numerous Ross Lenses we had the pleasure of selling you? We are

> Very truly, WILSON, HOOD & Co.

> Office Centennial Photo. Co., Exhibition Grounds, Dec. 27, 1876.

Messrs. Wilson, Hood & Co.:

Dear Sirs: In reply to your favor of this date, I beg to say that I personally superintended the works of this Company during the past summer, and to my knowledge the lenses used for portraiture by our Company were by no means all of Mr. Dallmeyer's make. In fact all the Dallmeyer lenses in the establishment were returned to Messrs. Anthony & Co., in October, and since then, and previous to that time both the Ross lenses obtained from you, and "Hermagis" were used, as well as a large number of "Peerless" lenses. A number of the Dallmeyer lenses sent for our use were never opened from their original packages. They were kindly loaned to Mr. Notman, but those of other makes were purchased because of our preference for them.

Very respectfully yours,

EDWARD L. WILSON.

(We also call attention to the following unsolicited testimonial from Mr. Seaver, one of the photographers of the Centennial Photo. Co., as to the Ross Rapid Symmetricals supplied by us. —W., H. & Co.]

> Office Centennial Photo. Co., Centennial Grounds, Nov. 6, 1876.

Messrs. Wilson, Hood & Co.:

The Rapid Symmetricals (stereo.) are splendid. In all my experience with lenses, and I have used nearly all the first-class lenses in the market, I have never found any to equal these. Such depth, sharpness, and softness I have never met with before. You can bet that I am going to keep the stereos, and enclose sixty dollars (check) on account. Have not had time to test

#### USE WAYMOUTH'S VIGNETTE PAPERS.

the  $6\frac{1}{2} \times 8\frac{1}{2}$  as much as I would like. I think it is as good as the small ones, but would like to try it a little before I decide; will decide next week. All the operators are loud in their praise of the Little Jokers, and if you had another pair I think I know of some one who would take them. Yours truly, C. SEAVER, JR.

## Hance's Photographic Specialties. See Advertisements.

GREAT chance to make money. If you can't get gold you can get JI greenbacks. We need a person in every town to take subscriptions for the largest cheapest, and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address

"The People's Journal,"

Portland, Maine.

Lantern Slides, \$5 per doz.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

A good steady operator desires a situation. Can print and retouch; had some carbon experience. Address W. H. Dunwick, Fort Edward, New York.

As retoucher; can print and tone; has also had some experience in oil and water colors, India-ink, plain and colored crayons. Salary moderate. Address Chas. Schneukir, Berlin, Ontario, Cauada.

By a young man of good address, who has had two years' experience in photography and ferrotyping, in a gallery producing fine work. Salary low. Best of references furnished. Photo. sent if desired. Address A. M. Hammers, Indiana, Pa.

As retoucher. Address, care of Frank Jewell, Scranton, Pa., by whom I am now employed, and to whom I can refer you as to work, etc. Jim Pease.

By a young man of steady habits, who understands: principally retouching, and can render general assistance in a gallery. Address G. L. Rosenberger, Selma, Ala.

As operator, by a steady, intelligent man, having fifteen years' experience; understands carbon printing, and will give the use of a complete landscape apparatus if desired. Terms moderate. Southern States preferred. Address K. W. Anderson, 427 Yonge Street, Toronto, Canada.

By a first-class operator; understands all branches of the business. Address A. G., care Anthony, No. 591 Broadway, N. Y.

To take charge of a gallery, or to operate. Specimens of work furnished on application. Address "Pose," care N. H. Busey, N. W. corner Charles and Fayette Streets, Baltimore, Md.

By an A No. 1 operator and good general workman. Is steady, sober, and honest, and has had over fifteen years' experience. Address J. R. Devere, 37 Broome St., Brooklyn, E. D., Long Island, N. Y.

By a good operator, of five years' experience; can take entire charge of gallery, and can give good references. Address J. Y. Wise, Milton, Pa., P. O. Box 45.

A lady who can retouch and color in oil, water colors and ink, desires a salaried situation for one year, after which, if agreeable to all concerned, would like to buy an interest in the business. Address P. O. Box 234, Mt. Vernon, Iowa.

By a young man who has had four years' experience as printer and toner, or could operate if necessary. Address Fred. H. Peck, 8 Cypress Street, Rochester, N. Y.

#### USE WAYMOUTH'S VIGNETTE PAPERS.

# G. GENNERT

# 38 Maiden Lane, New York

IMPORTER OF THE CELEBRATED

# S. &. M. DRESDEN Albumen Papers

SINGLE OR EXTRA BRILLIANT.

This paper has been imported by me to the great satisfaction of photographers for the last eight years, and has not been surpassed by the many different brands sprung up since.

ALSO,

Hyposulphite of Soda, Sulphate of Iron,

Solid German Glass Baths,
Saxe Evaporating Dishes,
French Filter Paper,
Porcelain Trays.

# Ferrotype Plates.

I ALSO IMPORT EXTRA BRILLIANT

CROSS-SWORD PAPER.

For sale by all Stock-Dealers in the United States and Canada.

## REDUCTION IN PRICE!

# THE CENTENNIAL PHOTOGRAPHIC CO.

BEG TO ANNOUNCE THAT THEIR

UNRIVALLED STEREOSCOPIC VIEWS

Statuary, Interiors, Exteriors,

Fancy Groups,
Works of Art,
Machinery, etc.

Making the most unrivalled collection ever published, have been

# REDUCED TO \$2.00 PER DOZEN.

THE FOLLOWING SIZES ARE ALSO MADE:

Card, Cabinet,  $5 \times 8$ ,  $8 \times 10$ ,  $13 \times 16$ , and  $17 \times 21$ .

Liberal Discount to the Trade. Catalogues supplied on receipt of a three-cent stamp.

Every Photographer Can Sell Them.

A L S O. —

# Magic Lantern Slides

Over 500 subjects of greater interest than any other class of subjects in this line

FOR SALE BY THE

### CENTENNIAL PHOTOGRAPHIC CO.,

Studio—Belmont Av., Exhibition Grounds, Philadelphia.

EDWARD L. WILSON, Prop'r.

City Office, 116 North Seventh St.

Dealers Supplied at the Best Rates.

1878—THE LATEST IMPROVEMENT IN PHOTOGRAPHY.—1878

## HALL'S

# Transparent Crystal Varnish,

For Ferrotypes.

A combination of volatile solvents and soluble gums, forming a clear, transparent, colorless varnish, specially suitable for Ferrotypes.

After many careful experiments, we have succeeded in making what we consider to be the best varnish for Ferrotypes yet made, as it combines all the necessary qualities required in a good varnish, and has none of the objections which other (otherwise good) varnishes have.

A good varnish for Ferrotypes should be colorless, so that the high-lights, half-tones, and deep shadows shall remain brilliant—and pure in tone. It should dry clear without heat, thus saving the expense of gas or burning-fluid; and it should have no offensive odor to annoy the delicate senses of your customers and yourselves. All of these objections we have overcome, and combined in our varnish all the good qualities requisite. As, for instance, this varnish is perfectly colorless, and as clear and brilliant as distilled water. It dries clear in a few moments, without heat, and gives a fine, glossy, transparent film, and has no offensive odor. As a test, we would ask you to order a bottle of your stock-dealer, and try it, feeling assured that you will continue to use it in preference to all others. Each bottle bears our signature. SOLD BY ALL STOCK-DEALERS.

HALL & CO., ST. LOUIS, MO.

#### G. SAUTER,

No. 138 SOUTH EIGHTH STREET, PHILADELPHIA,

MANUFACTURER AND WHOLESALE DEALER IN

#### PASSEPARTOUTS.

The attention of the trade is particularly called to the superior quality of our Glass and materials, and neatness of finish. A large assortment constantly on hand.

#### BULLOCK & CRENSHAW,

No. 528 Arch Street, Philadelphia,

MANUFACTURERS AND IMPORTERS OF PURE CHEMICALS FOR PHOTOGRAPHY. IMPORTERS OF GLASS AND PORCELAIN, APPARATUS, ETC.

# Lantern Slides

AT

# GREATLY REDUCED PRICES!

SEND FOR CATALOGUES.

FURTHER REDUCTIONS JANUARY 1st.

EDW. L. WILSON, Largest Dealer in America, 116 N. 7th St. Phila.

# BENJ. FRENCH & CO.,

No. 319 Washington St.,

BOSTON, MASS.

IMPORTERS AND SOLE AGENTS IN THE UNITED STATES FOR

# Voigtländer & Son And Parlot

TUBES AND LENSES.

#### CONDENSING LENSES FOR MAGIC LANTERNS

 $4\frac{1}{8}$ ,  $4\frac{1}{2}$ , and 5 inch diameter of superior quality. Also, a great variety of

FOREIGN AND AMERICAN SLIDES.

### Our Stereoscopic Lenses are the Best in the Market.

#### DARLOT HEMISPHERICAL WIDE-ANGLE VIEW LENSES.

Length of back focus. Size of Views.	Price.	Length of back focus. Size of Views. Pri	ce.
No. 1-2½ inch, Stereoscopic, per pair,	\$27 00	No. 5-12 inch 14 x 17 \$4	00
	00 00	6—16 " 17 x 20 5	3 00
$3-5$ " $6\frac{1}{2} \times 8\frac{1}{2}$	22 50	7—40 " 32 x 42 27	5 00
4—8 " 10 x 12	28 50		

## For Sale at Great Bargains:

#### A FEW OF DARLOT PORTRAIT LENSES

With View Attachment from 1-4 size up to Mammoth size. Also few

Large Size C. C. HARRISON and HOLMES, BOOTH & HAYDEN, Second hand.

SEND FOR PRICE LISTS.

# ST. LOUIS,

# J. C. SOMERVILLE

No. 8 South Fifth Street.

#### OUTFITS A SPECIALTY!

THE BEST GOODS AT THE VERY LOWEST PRICES FOR CASH.

Somerville's Extra Negative Collodion.

Somerville's Extra Ferrotype Collodion.

Somerville's New Diamond Varnish.

Somerville's Retouching Varnish.

Tilford's Collodion.
P. & W. Chemicals.
Frames and Matts of
every Description.

#### PHOTO-CHROME OUTFITS COMPLETE, \$2.50.

Convex Glass, Cotton and Silk Velvet Passepartouts, and all goods for the Photo-Chrome Picture kept in stock and sold at the lowest market prices.

Seventeen years' experience. Cash prices and prompt shipment. New packing boxes of the right size at cost. Send a trial order.

Send for new Illustrated Price List and Budget for 1878.

# Improved Solar Cameras.



# SCOVILL

# Manufacturing Company,

419 & 421 BROOME STREET,

- New Nork-

MERCHANTS IN

# ALL ARTICLES PHOTOGRAPHIC

FOREIGN AND DOMESTIC.

PROPRIETORS OF THE WORKS OF

## THE AMERICAN OPTICAL CO. NEW YORK.

S. PECK & CO., NEW HAVEN, CONN. SCOVILL MANUF'G CO., WATERBURY, CONN.

SOLE AGENTS FOR

MORRISON'S VIEW LENSES,

"PEERLESS" PORTRAIT LENSES, ENGLISH PORCELAIN WARE, FRENCH AND ENGLISH GLASS. ALBUMENIZED PAPER-ALL MAKES, HANCE'S "PHOTO. SPECIALTIES," CENTENNIAL PHOTO. CO.'S VIEWS, GRAPHOSCOPES, STEREOSCOPES, &c.

The Greatest Stock in the World! Dealers Everywhere Supplied Low!

-BROOME-421

SCOVILL MANUF'G CO., NEW YORK.

# AMERICA

Contains no Larger Stock and Variety of

## LANTERN SLIDES

• → THAN OURS! →

FOR SEVERAL YEARS WE HAVE MADE THEM

"Our Specialty!"

AND WE ARE NOW UNDOUBTEDLY

Ahead!

BOTH IN QUANTITY
AND PRICES.

# MAGIC LANTERNS

Of ALL KINDS, and CHEMICALS, also Supplied.

Our FALL STOCK has arrived, and by ordering NOW, you can have the best selections. Special inducements to large buyers. Parties who wish to buy such goods should, before purchasing, examine our FOUR CATALOGUES, which we mail for twenty-five cents.

WE PUBLISH

WILSON'S

Pantern Journeys,

A Lecture Book describing graphically, as an eye-witness, 800 beautiful places and things in all parts of the world, including Two Centennial Journeys. THE

Magic Pantern.

A Monthly Journal devoted to interests of Lantern Lovers.

\$1.00 per Year, post-paid.

Special Estimates and other information given gladly. Promptness our rule.

EDWARD L. WILSON, Photo. Publisher, 116 North Seventh St., Philadelphia.



THE TRADE WILL ALWAYS FIND THE LARGEST
ASSORTMENT OF

# GOLD OVAL, SQUARE, FRAMES

Velvet Mats---English, Black & Display Mats.

# C. FASER,

Salesroom: No. 822 ARCH STREET, second floor.

PHILADELPHIA.

"A Delightful Book of Travels."

Has a Wonderful Sale.

# WILSON'S

# antern Journeys.

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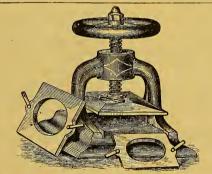
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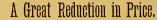
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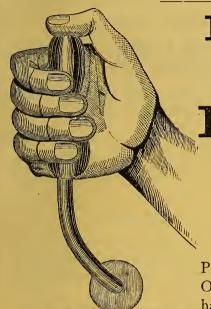
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66	4,	8	"	44	10	x	$1\overline{2}$	44	42	00	- 46	4	- 66	66	5	66		75	
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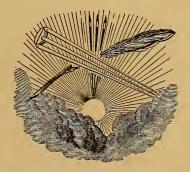
AN ILLUSTRATED MONTHLY JOURNAL,

#### DEVOTED TO PHOTOGRAPHY.

EDITED BY EDWARD L. WILSON.

THE OFFICIAL ORGAN OF THE NATIONAL PHOTOGRAPHIC ASSOCIATION OF THE UNITED STATES.

February, 1878.



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$2\frac{5}{8} \times 3\frac{5}{8}$	5 x 7	7 x 9	For	Stereograph	ıs.
$2_8^7 \times 4_4^1$	$5_{4}^{1} \times 7_{4}^{1}$	$7\frac{1}{4} \times 9\frac{1}{4}$	Arch Tops.	Round-Cornered.	Round.
3 g x 4 g	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3_{78}^{1} \times 3_{4}^{3}$	$3\frac{1}{16} \times 3\frac{3}{4}$	3 x 3
$3\frac{3}{8} \times 4\frac{5}{8}$	$5\frac{5}{8} \times 7\frac{5}{8}$	$7\frac{3}{4} \times 9\frac{3}{4}$	3 x 3	3 x 3	

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## Philadelphia Photographer.

Vol. XV.

#### FEBRUARY, 1878.

No. 170.

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#### THE PRIZE AWARD.

Some grand pictures have been sent in competition for our Gold Medal. Full particulars as to them, and the award made, will be found further on.

#### OUR PICTURE.

THE photograph which embellishes our current issue, is a portrait of the Honorable John Welsh, of Philadelphia, a gentleman whose name and praise were upon the lips of millions of people during the great International Exhibition at Philadelphia, and who has recently been honored by his nation with the appointment of Minister to the Court of St. James.

So much has been written concerning him, recently, that it would not come within our province to rehearse it.

We have had opportunity during the past five years of enjoying the personal acquaintance of this distinguished citizen, having been brought in contact with him as a comember of one of the committees organized for raising funds for the grand exhibition, of which committee Mr. Welsh was the honored president.

It is well known that but for his cheerful persistence and energy that the Exhibition could not have been so glorious a success as it was. Moreover, photographers are individually indebted to him for the very hearty cooperation given by him in his official capacity to the project for erecting Photographic Hall, and rendering unto photography a place side by side with the other arts.

Mr. Welsh, it will be remembered, was the president of the Centennial Board of Finance, which position he held until resigned for the latest honor which has been placed upon him; and so acceptable was his service to his fellow citizens that the most flattering testimonial ever offered to any Philadelphian was accorded to him in the form of a sum amounting to \$50,000, which, agreeable to his wishes, was used for the endowment of the John Welsh professorship of Science and Art in the University of Pennsylvania, which gift was publicly presented on the 22d of February, 1877. His portrait should have graced our magazine before now, but for the length of time required to print a sufficient quantity from a few negatives for our purpose. It is pronounced by him a most satisfactory likeness, and by many as the most lifelike one which has been made of him. He is now engaged in the service of his country abroad, and previous to his departure was given a reception by his fellow citizens at the Academy of the Fine Arts, in Philadelphia, which occasion was one of the most brilliant on record.

Mr. Welsh is a man who has passed through the long years of business life with

maintained integrity, and the respect and esteem of all who know him. No young man could pattern after one more worthy, or wish a better wish than to be like him.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 2.

The Chemicals used in the various Picture-making Processes: their Manufacture and their Properties.

NITRATE of Silver.—"The preparation of this important. of this important salt will usually require to be effected from silver coin, or from the photographer's silver residues; we will take the former case first, leaving the latter to be treated of when we describe the best method of converting residues into pure silver. The first thing to be done in the manufacture of nitrate of silver from coin (which contains silver, copper, and sometimes a trace of gold), is to dissolve the coin in nitric acid. For this purpose, select the newest coin you can get, and of the smallest denominations. First of all, it will be necessary to remove all the dirt and grease from the surface of the coins, which may be effected by well brushing them in hot soap and water, containing some soda dissolved in it. After well washing with distilled water, and wiping with a piece of fine clean linen, they may be considered as sufficiently clean. All the vessels and utensils employed must be cleaned in like manner. Next take a sound (not earthenware) breakfast cup, fill it a quarter with pure concentrated nitric acid; add to it about one ounce of distilled water, and then place in the coins, a few at a time. Arrange a glass funnel, upside down, so that it just rests inside the cup, but not low enough down to touch the liquid; the object of this is to prevent particles of the solution from being projected out of the vessel and thereby being lost, owing to the brisk effervescence which will soon take place. Place the cup and funnel on the hob of a a grate in which there is a moderate fire, for the double purpose of warming and hastening the reaction, and of carrying off the deleterious vapors up the chimney. A lively effervescence will soon take place; torrents of a poisonous and disagreeably smelling

red gas will be evolved, and the coin will gradually disappear, forming a blue solution. If the evolution of gas seems likely to cease before the coin has entirely disappeared, a little more nitric acid may be added, taking care to add to it about one-fourth its bulk of distilled water. When the action has entirely ceased, the solution will present a clear blue color, with perhaps a few black or brown particles settling to the bottom. These will be metallic gold. The next thing is to get rid of the excess of nitric acid. Take the outer vessel of an ordinary gluepot and half fill it with water. Rest your cup in this; place over a fire and let the water boil briskly. The funnel must now be removed, its inner surface having been rinsed with distilled water into the cup. Continue the heating until acid vapors cease and the contents of the cup have become dry and inodorous. Remove the cup and pour into it about two ounces of distilled water. It will now contain a pure solution of the mixed nitrates of silver and copper.

"To remove the latter: Pour the contents of the cup into a wide-mouthed stoppered bottle, of about a pint capacity, add to it half a pint of water and a solution of tablesalt, until the white precipitate, which will immediately be thrown down, is not increased by a further addition of salt solution. Shake the bottle well, and allow its contents to settle. When the precipitate has quite settled, pour off the clear liquid, and fill the bottle with distilled water; shake, allow it to settle, pour off the water, and repeat the operation three or four times, or until the addition of weak ammonia to the clear liquid does not cause a blue tint. Next add to the precipitate remaining in the bottle some large, clean, wrought-iron nails, and half an ounce of very weak sulphuric acid; allow it to remain for twenty-four hours, when the whole mass will be found to be converted into a dark gray powder: it will be metallic silver. Remove the remains of the nails from the powder, wash well first with dilute sulphuric acid, and then with distilled water in the manner above recommended, until the solution ceases to turn blue litmus paper red, when the residue will be pure metallic silver, which will only require to be dissolved in nitric acid in the same manner,

when the dry residue left in the cup will be pure dry nitrate of silver.

"In the crystalline state it forms transparent and colorless plates; when heated to a temperature below redness, it fuses without decomposition, forming a clear liquid which solidifies in cooling to a white, hard, fibrous mass. It has a bitter, disagreeable, metallic taste, and acts as an acrid poison if taken internally. It does not blacken in the air or light, except when in contact with organic matter. Placed in contact with copper, even in the dry state, it is reduced to metal, a change which also takes place if kept wrapped in paper for a long time. It dissolves in one part of cold water. It is insoluble in strong nitric acid, and is precipitated by that acid from its aqueous solution."

Iodide and Iodines.—"Since the manufacture of these requires the resources of a laboratory, it will suffice to give their properties."

Iodine.—"A simple body, which crystallizes in black glossy leaves. It evaporates at the ordinary temperature, melts at 107°, boils at 180°, and forms violet vapors. It does not dissolve readily in water, but easily in alcohol, ether, and a solution of iodide of potassium, forming a dark-brown liquid."

Iodide of Ammonium.—"A white deliquescent salt which by spontaneous decomposition easily turns yellow. It dissolves very readily in water, and rather easily in alcohol and collodion."

Iodide of Cadmium.—"Forms in white crystals; has a lustre like mother of pearl; easily soluble in water and alcohol; very permanent; forms double salts with other iodine metals."

Iodide of Lithium.—" Deliquescent; soon turns yellow; readily soluble in water and alcohol."

Iodide of Potassium.—"A white salt which crystallizes in cubes; it dissolves very readily in water, only sparingly and with difficulty in alcohol; it is very permanent."

Iodide of Silver.—"A yellow substance, insoluble in water, alcohol, and ether; soluble in hyposulphite of soda and cyanide of potassium; sensitive to light; it is precipitated, when to a silver solution, iodide of potassium or any other iodine salt is added. If the salt of silver is in excess, the iodide of silver is very sensitive to light; other-

wise but slightly. It dissolves more readily in cold than in warm water. When in excess in a silver solution, it precipitates upon the plate, producing pin-holes."

Iodide of Sodium.—"Forms into white needles, which decompose in the air; dissolves readily in water, and tolerably well in alcohol."

Iodide of Zinc.—"A deliquescent white salt, easily soluble in water, alcohol, and ether; decomposes readily in the air, leaving oxide of zinc; forms permanent double salts with iodide of ammonium and iodide of potassium."

Bromide of Ammonium.—"A white permanent salt, dissolves readily in alcohol."

Bromide of Cadmium.—" Crystallizes in white needles; decomposes in the air by parting with its water of crystallization; readily soluble in water and alcohol; forms double salts with other bromides; very permanent."

Bromide of Potassium." Crystallizes in cubes, and is permanent; it dissolves readily in water, but sparingly in alcohol."

Bromide of Silver.—" Precipitates when we add to a solution of nitrate of silver bromine metal, and forms a yellowish-white precipitate, which is neither soluble in water nor in the nitrate bath; ammonium dissolves it sparingly, but the fixing bath very readily."

Bromide of Sodium.—" Contains water; dissolves readily in water, sparingly in alcohol; very often it contains considerable impurities."

Table of *Iodides* and *Bromides* used in photography, showing their percentage of Iodine and Bromine, and the quantities containing one grain of Iodine or Bromine.

Iodide of	Formula	Equivalent.	Per cent. of Iodine.	One grain of Iod, is contained in
Iodine. Ammonium. Cadmium Lithium Potassium Sodium Zinc	I. NH <sub>4</sub> I. CdI. LiI. KI. NaI. ZnI.	$\begin{array}{c} 127. \\ 18+127=145 \\ 56+127=183 \\ 7+127=134 \\ 39+127=166 \\ 23+127=150 \\ 32.6+127=159.6 \end{array}$	69.4 94.8 76.5	1.14 grains 1.44 " 1.05 " 1.30 " 1.18 " 1.25 "
Bromide of  Bromine. Ammonium. Cadmium Potassium Sodium	Br. NH <sub>4</sub> Br. CdBr. KBr. NaBr.	80. 98 136 119 108	81.6 58.8 67.5 77.6	1.48 "

An account of the various chlorides which are used in photography will appropriately follow. First in importance stands

Chloride of Sodium—Common Salt.—
"The article is so well known that a detailed description is superfluous. One peculiarity may be new to many; i. e., it is equally soluble in water, whatever may be its temperature: boiling water not dissolving more or less than water at the freezing-point."

Chloride of Gold.—" A brown deliquescent salt, easily soluble in water. Is decomposed by light, and forms, with chloride of potassium, permanent double salts. It is usual to prepare it from gold coin by dissolving the latter in aqua regia. Two drachms of nitric acid with three drachms of hydrochloric acid will dissolve a five-dollar goldpiece."

Chloride of Strontium.—"It is chiefly valuable to the photographer for the purpose of chlorizing collodion. It is very soluble in alcohol."

Pyroxylin, or Soluble Cotton.—"This is one of the most important substances used in the practice of photography. Since it can be bought of almost unvarying grade and of excellent quality, it is advisable to procure it from a dealer. For the benefit of the amateur chemist, the following mode of preparation is given:

Sulphuric Acid, . . . 6 fluid ounces.
Dried Nitrate of Potash, 3½ ozs. avoirdupois.
Water, . . . . . . 1 fluid ounce.
Best picked Cotton, . . 60 grains.

"The nitrate of potash should be reduced to powder and dried before weighing, to insure accuracy. It is then put, a little at a time, into a jar containing the sulphuric acid and water which have been previously mixed, stirring with a glass rod until all the nitre is dissolved. The temperature which will have risen considerably at first, should be allowed to fall to about 150° Fahr., and the cotton, having previously been pulled out into tufts, is put into the mixture, pressing each piece with the glass rod to the sides of the vessel to secure perfect immersion and the contact of the liquid with every fibre of the cotton.

"After remaining in the mixture ten minutes, the cotton is removed and thoroughly washed in repeated changes of water, until all traces of the acid and of sulphate of potash are removed. It is imperatively necessary to be provided with a thermometer, the bulb of which can be inserted in the acid; the exact temperature playing a most important part in regard to the resulting product.

"The method of preparing soluble cotton by means of mixed acids, is most commonly adopted where large quantities are required, and is also often preferred where a more complete command over the relative strengths of acids is desired, so as to produce at will pyroxylin with certain specified characteristics.

"The amount of solubility in ether and alcohol, the characteristics of glutinosity or limpidity, sensitiveness, intensity, permanency, coarse structure or its entire absence, are all regulated largely by the strength and proportion of the acids, and the relation of their strength to the temperature at which they are employed. Within certain limits, pyroxylin made with weak acids and at a high temperature, tends to give the greatest intensity, fluidity, and structurelessness to the collodion, the film being short and powdery, as distinguished from that which is tough and horny; and is most suitable for negatives. A lower temperature and stronger acids give a pyroxylin collodion, from which it gives a tough transparent film most suitable for glass positives. A higher temperature with strong acids, has an analogous effect to a low temperature with weak acids; whilst a medium in both respects tends to give the greatest solubility."

Alcohol.—"It never occurs ready formed in nature, but is, under all circumstances, a product of the decomposition of sugar by fermentation. When the spirit is formed in the fermented liquids, its separation is effected by distillation in a suitable apparatus. The spirit, being more volatile than water, distils over first, and by repeated distillation over burnt lime, it is entirely deprived of water, and in that form is termed absolute."

Sulphuric Ether.—"It is a product of the decomposition of alcohol. When the latter is mixed with sulphuric acid and distilled, we obtain ether. This compound is a transparent, lightly-volatile liquid, which boils at 95° Fahr., and possesses an extremely pene-

trating odor. It does not mix with water, nor dissolve any of the salts, but on the other hand it takes into solution nearly all the resins, ethereal oils, and fats."

Acetre Acid.—"Only a limited number of vegetable juices in their natural condition contain acetic acid; it is, however, readily formed when alcohol is exposed, under certain circumstances, to the influence of the atmosphere, or when vegetable matter, especially wood, is submitted to dry distillation. The acid known as No. 8 is in general photographic use. The glacial has the same properties, but is about three times as strong."

Citric Acid—"Is found in the free state, chiefly in the citron and lemon, and in other fruits. It is in limited use in our art."

Nitric Acid.—"Commercially, we have common nitric acid, containing muriatic and sulphuric acid, and pure nitric acid. For cleaning plates, the common acid suffices; for dissolving silver, the pure acid should be used."

Pyrogallic Acid.—"This is a most useful agent to the photographer. Although styled an acid, it is neutral, and does not redden litmus paper. It forms no salts. It is made by exposing gallic acid to a temperature of from 410° to 420° Fahr., which produces decomposition, and a yellowish-white sublimate of white lamellar crystals known as pyrogallic acid. It is very light, and easily soluble, either in water, alcohol, or ether. From its affinity for oxygen, it is valuable as a developer, acting with less energy than the protosalts of iron, but giving a more organic deposit, and is thus valuable in the production of negatives. The aqueous solution soon becomes dissolved from the absorption of oxygen, and loses its developing power. A concentrated solution in alcohol, if kept carefully stopped, will retain its efficacy for some months."

Protosalts of Iron.—"Various metallic bases combine with oxygen and other elements in different proportions, and the prefix proto, meaning first, is applied to those combinations in which one equivalent of the base, and one equivalent of oxygen or other element are united. Thus protoxide of iron contains one equivalent of oxygen, and one equivalent of iron. The term protoxide would naturally suggest that it was applied

to the first combination which could be formed; this is not always done, however, in practice; as where the combination contains less than one equivalent of oxygen, the term suboxide is used. The highest binary compound of the same element is distinguished by the prefix per; thus the peroxide of iron contains the largest amount of oxygen which combines with that base. developing powers of the protosalts of iron exist in virtue of their affinity for oxygen, it follows that, as soon as they are satisfied by acquiring all the oxygen with which they can combine, and become peroxidized, the developing power ceases. The same prefixes are used to indicate the combinations of metallic bases with other elements, such as chlorine, sulphur, etc., and hence we have subchlorides, protochlorides, perchlorides, etc. The protosulphate of iron has become the standard developing medium with which the photographer is most familiar."

Hyposulphite of Soda.—"It contains water and dissolves readily in water. The solution of this salt dissolves the salts of silver and forms with them double salts, hence its use as a fixing substance.

"The solution of the salt is decomposed by acid, sulphur being set free. When this takes place in pictures sulphide of silver is formed, and the picture turns yellow. If too little soda is present in the fixing solution an insoluble double salt is formed. This remains in the picture and causes yellow spots."

Cyanide of Potassium.—"It is the only one in the list of cyanides that is of much practical importance to the average photographer. As it is extensively used in other arts beside our own, it is manufactured on a very large scale, and is apt to be contaminated with such impurities as sulphide of potassium, chloride of potassium, silicate of potash, etc.

"The pure salt obtained by crystallization from an aqueous or alcoholic solution forms anhydrous octahedral crystals which can be made to fuse into a transparent and colorless liquid. When quite dry, it is inodorous, the smell usually accompanying the commercial article arising from the carbonic acid, and moisture of the air decomposing it with liberation of hydrocyanic acid. It has

a strongly alkaline and bitter taste. Cyanide of potassium quickly dissolves in water. When moist lumps of it are allowed to remain in contact with air at an ordinary temperature, they gradually absorb carbonic acid, evolving hydrocyanic acid and becoming converted into carbonate of potash. Even the dry lumps, when similarly exposed, soon deliquesce and go through the same action.

"In absolute alcohol it is almost insoluble. Strong spirit precipitates it from its aqueous solution. It dissolves the chloride, bromide, and iodide of silver with readiness, converting them into the corresponding potassium compounds, and the double cyanide of potassium and silver. It is of great use in fixing collodion pictures, but is not adapted to positives on paper, as its action is too energetic upon silver, in so finely divided a state as it exists in the dark parts of the paper print. When fixing with cyanide, after using an iron developer, care must be taken to wash the solution well off, before the cyanide solution is applied, otherwise the reaction between the iron and cyanogen compound produces Prussian blue, which will be precipitated all over the surface of the picture. It will be likewise convenient to employ a vertical fixing bath, in preference to pouring it from a bottle, as owing to less surface being exposed in the former case, the solution will not so readily decompose, nor will the room smell so strongly of hydrocyanic acid. After fixing with cyanide, the plate requires but little washing and is in a more favorable condition for intensifying than if hyposulphite had been used. Its use for removing sflver stains is familiar to every photographer."

Bichromate of Potash.—"A very permanent salt. By itself it does not change in the light; dissolves in either warm or cold water, the more freely in the former. Combined with organic substances it decomposes in the light. It is an important material in the photo-lithographic and Lichtdruck processes; it is also indispensable in the carbon and the Woodbury printing processes; and it is far more sensitive to light than nitrate of silver and is exceedingly poisonous."

Gelatin.-" It can be described as a refined white glue; placed in cold water, it increases in bulk. It is dissolved in boiling water, but not in alcohol and ether. The hot solution coagulates on cooling; it is also coagulated by alum, chromate of alum, and in the presence of light by a chromic salt; finally by tannin. It is an important material for the carbon (pigment) process, relief printing, and in photo-lithography."

Glycerin.-" It is gained in large quantities as a side product in the manufacture of soap. It is thick and oily; readily soluble in water, also in alcohol. It is used for thickening colors and also in negative-making processes, for keeping the plates in a moist condition for long periods of time.

We have now treated the principal photographic chemicals. Others could be appended whose uses are but occasional. An operator's closet that is supplied with the following list may be considered well stocked for all ordinary operations.

DIOMING.								
Bromide	f	Ammonium,						
"	"	Cadminm.						
"	"	Potassium.						
"	cc	Silver.						
66	66	Zinc.						
Cadmium								
Calcium.								
Chlorine.								
Chloride o	of	Ammonium.						
"	"	Barium.						
"	"	Calcium.						
"	"	Gold.						
"	"	Sodium.						
"		Silver.						
44	"	Strontium.						
"	٤.	Platinum.						
Cyanide o	f	Potassium.						
Bichroma	te	of Potash.						
Iron.								
Acetate of	2	Soda.						
Gold.								

Ammonia.

Bromine.

Iodide of Ammonium. " " Cadmium.

" " Potassium.

" Sodium. " Silver.

" " Zinc.

Lithium. Mercury.

Todine.

Nitrate of Silver.

" " Uranium.

Nitrie Acid.

Hydrochloric Acid.

Sulphuric Acid.

Oxygen.

Sulphate of Protoxide of Iron.

Double Sulphate of Iron and Ammonia.

Hyposulphite of Soda. Hydrogen.

Zinc.

All of the "scraps" comprising this series have been compiled from the following sources: Photographic News, Dr. H. Vogel, Hardwich, Schoedler, and Medlock.

No five dollars you can invest during the year 1878 will save you more, and gain you more, than the sum required to pay for the Philadelphia Photographer for one year.

#### ALBUMEN vs. TONING.

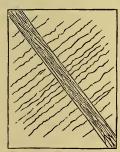
BY M. L. DAGGETT.

In the September number of the Philadel-phia Photographer for 1877, under the interesting heading of "R. R. R." appears the following: "It is more difficult to comprehend why different portions of a sheet of paper, silvered intact, will tone so differently," etc.

Now I would venture the following explanation, and although it may be an old story to some, yet numbers of the craft, the bulk of whose work is no larger than  $8 \times 10$ , have so little chance of observing the matter, it may to them be news.

If a printer hotices carefully his paper as received from the dealer, he will observe a diagonal line of slightly crumpled appearance running from corner to corner. This is produced by the line or stick over which the paper is hung to dry when albumenized, and is the line of unequal tones, as it might be called.

After silvering there is to be seen, though very faintly, other lines running at right angles with the first toward the corners of the sheet, and forming, when the sheet is spread flat, the following appearance.



As before stated, these small lines are very faint and hardly discernible before printing; but put a piece under a negative having heavy shadows and a great deal of clear glass, and, lo! you have a map of rivulets

and streams of all sorts running parallel to each other, rising in the centre line and losing themselves as they come to the edge.

These last lines are caused by the albumen running toward the corners as the sheet hangs to dry, forming a regular drainage from the centre toward the edge. Whether this results from the condition of the albumen, or from some adulteration of it, I am not certain, but it seems to disintegrate (if I may be allowed the use of the word in speaking of a liquid), it loses its homogeneous

state, and seems to separate like curds and whey, robbing the centre of the sheet, and building up the edges.

Such paper is poor at its best estate, but the centre is remarkably so, and as the print made on it goes on to the toning-bath its poor qualities become more apparent at every stage till they reach the culmination of "cussedness" under the action of the gold salts, when, before the other parts of the same sheet begin to tone, this has arrived at the point that ten or twelve years ago would have passed for good, when pictures were toned "till all was blue."

The toner lays it to the printer, who, in turn, is apt to reply, "Keep your pictures moving, and you'll not have uneven tones;" but neither hits the case.

I supposed at first myself that it lay in neglect on the part of the toner, as we were in the habit of using nearly a hundred sheets a day, and, as we did not commence toning till rather late, supposed the hurry incident to the time would explain it, but after persistent watching I traced it back to its source in the albumen.

Now the portrait-worker does not get, generally, on one print the whole exhibition of this case, but as his paper is cut so small he gets nearly all of one print either inside or outside this line of thin albumen, and as his work is often more than half vignettes, he has still less chance to notice the evil; nevertheless, there are his poor tones and good ones in the same batch, from the same negative, and the same sheet.

It has sometimes been laid to the hanging of paper to dry after silvering, with the statement that the lower end receives more silver than the upper on account of drainage. Such an explanation will pass occasionally, but as most photographers of to-day draw their paper over a rod, thus removing the surplus silver, there is too little drainage in the majority of cases to produce any such marked results, but we can look back of that, and find our source of trouble very often in the albumen. It is not always so, but I will have two or three reams poor, and the next two or three be as good as could ordinarily be asked for.

SECURE a copy of Photographic Mosaics.



Questions.

HAVE recently been endeavoring to purchase a gallery here, and the question has risen on the proper method of inventorying negatives on a bill of sale. I reasoned that the only value an old negative had was the possible chance of receiving an order for more pictures from it, and that experience has shown that only about twenty-five per cent. of old negatives received duplicate orders. Further, that the making of the negative had been paid for with the first order for pictures; therefore I reasoned that old negatives were worth only on inventory the price of new glass, with the addition of twenty-five per cent. for future orders. Was my reasoning right, or was it not? I should like to hear through Sphynx.

J. H. S.

Please let us know through the columns of the Photographer whether or not there is a single gallery in the United States that is making interest on its investment in the carbon process; or if there is a photographer who has considered the carbon process so superior that he has discarded silver printing for it; or whether they are satisfied with the glory they have derived from it? My opinion is that some who gobbled up large, extensive territory to exclude their brother photographers, begin to think that they have made another mistake, and that they have been stuck with the "glue." Your Photographer has come to us this morning as bright as a dollar, and is always anxiously looked for. G. M. B.

I would like the opinion of my co-workers as to the size of the skylight, side-light, angle of same, how near to the floor the bottom of side-light should be fitted; room

about 20 x 30 feet, running thirty feet east and west, so the light can face north. C.

WILL the friends of Sphynx, as far as they can, please answer the above questions?

#### "THE PHOTOGRAPHER TO HIS PATRONS."

WHAT IT IS, AND HOW TO USE IT.

WE have so frequently brought this little leaflet to the notice of our readers that all should be informed concerning its province and its value; but one of our patrons who has put it to use in his business has discovered a novel way of making this very excellent advertising medium cost him personally but little, and it is too good to keep from the knowledge of our readers, therefore we give it to them in his own words. First, let us say, however, that the Photographer to His Patrons, as described in the advertisement, is a little leaflet intended as a means of conveyance from the photographer to his patrons of such bits of information as he is obliged to give in answer to questions asked almost every day of his life; and the advantage of thus answering such questions is that his patrons will come to him already prepared for making his work easy and good, without his first having to instruct them. Moreover, it is gotten up in such nice shape, that it is kept and read, and handed from one to another, thus making an excellent advertising medium.

We give to those who adopt it the privilege of employing the pages of the cover for such advertisements as they may secure from their townsmen at their own price, without our charging them extra for it. In this way the whole, or nearly all, of the cost can be covered, as our correspondent testifies. He writes as follows:

"The leaflets ordered of you some weeks ago were received in good time, since which I have distributed eight hundred or a thousand of them. I have not only seen, but felt, the result. Ladies no longer come dressed as heretofore; they seem to have a better idea of what constitutes taste in dress to sit for photographs. This I attributed to having seen and studied the leaflets.

Another great good accomplished: my customers have some compassion on me; they no longer expect of me what is impossible for me to do, and are guided by my decisions.

"As an advertising medium the leaflets have no equal. For the information of others, I will now sum up what they cost, including express charges. Two hours soliciting business cards, and seven secured, at \$2.50 each, amounting to \$17.50, leaving a balance of \$2.50 for me to pay for my own space; express charges, \$1.25; total cost of the thousand leaflets, \$3.75, instead of \$20.

"With a little energy any photographer can secure cards enough from his friends to pay for fifteen hundred or two thousand leaflets, and he should not be without them."

With such testimony as this we think no live photographer should hesitate to take full advantage of the *Photographer to His Patrons*, or *Something New*, which is a similar work.

#### ON BURNISHING PHOTOGRAPHS. SORE HANDS.

BY J. H. SCOTFORD.

WHEN the burnishing of photographs first came in vogue, we remember with how great reluctance photographers with artistic feeling submitted to the popular demand for their highly-finished pictures; and we need not at this late date attempt any argument, either pro or con, upon the subject.

Our observation among a large number of photographers is that but few know how to properly burnish their work, so that they may obtain the highest polish, and at the same time the hardest and most durable surface. This, therefore, induces me to write the following instructions.

In the first place, a picture that has not been mounted upon a proper mount is not susceptible of the best finish; but supposing it is properly mounted, my instructions are, first, to see that the picture is not too much dried, as all know the swell of the card when a picture is first mounted bends the picture backwards. Let the picture dry until the contraction of the paper just commences to bend the picture forward. It will be found that the picture in this stage

is about three-fourths dry, and it is absolutely necessary that it should not be allowed to dry any more than this until after the picture has gone through the burnisher. This is best done by piling the pictures in one or two piles, and placing them under a weight. They should be carefully taken from this pile and spotted out, and immediately placed in another pile under weight. The same precaution should take place in applying the lubricator to the print. They should be taken to the burnisher in this condition and put through until a sufficient polish is reached.

The reason for this method of procedure will be evident to any one who has observed with what a number of irregular lines the surface of a picture will become broken when allowed to become perfectly dry in the usual manner. When these checks have once appeared in a picture there is no method of again uniting the broken surface, as I have repeatedly demonstrated by all sorts of experiments. When burnished by the above directions, the picture when cool will be found to be very compact and hard, and neither alcohol nor water will destroy the gloss, except by long soaking.

Another little hint I would give, on the best way to handle a picture in the burnisher. Just put the picture through the burnisher lengthways, curling it up backwards around the roller; afterwards put it through sideways, thus straightening it, and thereby a much higher polish will be secured. Always burnish with a slow motion.

If pictures are to be burnished let them be well burnished; and if the above remarks will assist any one in this direction, their mission will be accomplished.

#### SORE HANDS.

I would give a hint to those who have been troubled with sore fingers, from their contact with chemicals in various photographic manipulations. I have in former years been a great sufferer from this cause, but for the past two or three years have completely prevented these sore fingers by the use of rubber finger-cots, fitted to all my fingers and thumbs. They not only prevent the fingers from becoming sore, but also keep the hands free from those black

ungainly silver marks, which to me are exceedingly offensive. It may seem at first that these cots would be very inconvenient and troublesome in work, but my experience has been quite to the contrary, as the fingers soon become used to them, and the sense of feeling soon becomes quite delicate through them.

The use of these cots may not be new to all, but they will become a necessity after a short use of them.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 4.)

WE have seen that each element has a symbol and an atomic weight. chemical compounds are made up of these elements in fixed proportions, an expression to represent them may easily be obtained by combining the symbols of the elements composing the compound and figures representing the relative amounts of those ele-Such an expression is called the ments. chemical formula of the compound. instance, we know that the molecule of water is formed by two atoms of hydrogen (H) uniting with one atom of oxygen (O). So its formula is H2O, which indicates, first, that the molecule of water is composed of two atoms of H and one of O; and second, (the atomic weight of H being 1, H2 being 2, and of O being 16), that by weight there are 2 parts of H and 16 of O; also that the molecular weight of water is 18 (the sum of the atomic weight of its constituents), which means that the molecule of H<sub>2</sub>O is 18 times heavier than the molecule of H. It may not be out of place to say that the molecule of hydrogen is composed of two atoms of hydrogen (which can be easily proved). Indeed, the molecules of all the elements (except phosphorus, mercury, arsenic, and cadmium) are made up of two atoms. The molecules of phosphorus and arsenic are of four atoms, and of mercury and cadmium of only one. Accordingly, the molecular weight of the elements, with the exceptions noted above, is double the atomic weight; while of the exceptions on the one hand four times as much, and on the other the same.

But to return to the subject. If we know

that the molecule of a substance contains one atom of hydrogen, one of nitrogen (N), and three of oxygen, we then know that its formula is  $HNO_3$ , and its molecular weight  $(1+14+3\times16=)$  63. There is no rule that is strictly adhered to for the order in which the symbols should be placed, and while in general use the letters of a formula may come in a certain order, there may be plenty of authors that will not use them in the same order, as in the examples given above.  $H_2O$  is generally so written, but it may be found in some books  $OH_2$ , and  $HNO_3$  is the general way, but  $NO_3H$  may also be seen.

All the elements before given may be divided into two classes: metallic elements, or metals; and non-metallic elements, or metalloids. The metals are: aluminum, antimony, arsenic, barium, bismuth, cadmium, cæsium, calcium, cerium, chromium, cobalt, columbium, copper, davium, didymium, erbium, gallium, glucium, gold, indium, iridium, iron, lanthanum, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, osmium, palladium, platinum, potassium, rhodium, rubidium, ruthenium, silver, sodium, strontium, tantalum, thallum, thorium, tin, titanium, tungsten, uranium, vanadium, yttrium, zinc, zirconium.

The metalloids are: boron, bromine, carbon, chlorine, fluorine, hydrogen, iodine, nitrogen, oxygen, phosphorus, selenium, silicon, sulphur, tellurium.\* No definitions will be given for these two classes; what they actually are will become evident by the text. When an element forms a compound with oxygen, such compound is called an oxide. The oxides formed of the metals and oxygen are called alkaline or basic oxides; the oxides formed by the metalloids and oxygen are called acid oxides, or anhydrides. The basic oxides and acid oxides when brought together will combine and form salts. The acid oxides, when united with hydrogen, form what are called acids. The distinguishing properties of acids are a sour or acid taste, corrosive action, solubility in

\* Although all the elements are here divided into two classes, it must not be supposed that the dividing line is so sharply defined. There are some elements classed here as metals which sometimes act as metalloids (arsenic, for example) and vice versa, as will become evident further on.

water (as a general thing), and the power of turning certain vegetable colors red. This definition, which required oxygen to be present in every acid, was the one accepted for a long time without modification; but there were at length compounds recognized which, while they combined all the qualities of acids in themselves in an eminent degree, contained no oxygen, accordingly an exception had to be made in their favor. They are such as hydrochloric (HCl), hydrobromic (HBr), etc.

It may be well to glance at the system of nomenclature of the various compounds. At one time the various names were given at random, but it soon became evident, as the number of known compounds increased, that such a haphazard method would lead to endless trouble and confusion, so a systematic nomenclature was proposed and adopted, although many of the old names are still in common use; for example, "oil of vitriol," "saltpetre," "liver of sulphur," etc.

The system of naming, however, was not completely adopted. It had proposed a systematic naming of the elements, but the former names of these, however, were so deeply rooted in public favor that it was found impossible to change them. In the names of those elements that have been discovered since this innovation, a reason may always be found. In the names of the elements then, we find some that are the same as the name in common use, like copper, iron, etc.; some that are so named from some peculiar property noticed in them, as iodine (from a Greek word, meaning violet, on account of the violet color of its vapor); bromine (from the Greek, meaning an unpleasant odor; why is evident). The names of the newly-discovered metals have the common termination um, as potassium, platinum, etc., while in the metalloids those that resemble each other in some particulars have also a similar termination; for instance, chlorine, bromine, iodine, fluorine; also, silicon, boron, and carbon.

Turning from these to the compounds, we find more method in the naming. In binary compounds, that is, compounds made up of but two elements (one metallic, the other non-metallic), the name of each ele-

ment appears in the name of the compounds, while in writing the formula the metallic element is placed first, the non-metallic following.

In binary compounds, when the non-metallic element is boron, bromine, carbon, chlorine, fluorine, iodine, nitrogen, oxygen, phosphorus, selenium, silicon, sulphur, tellurium, the compound is called boride, bromide, carbide (formerly carburet), chloride, fluoride, iodide, nitride, oxide, phosphide (formerly phosphuret), silenide (formerly seliniuret), silicide, sulphide (formerly sulphuret), telluride.

A compound of silver and oxygen would be called oxide of silver, or silver oxide; or, making an adjective from the Latin name of silver, argentic oxide, and its formula would be Ag<sub>2</sub>O. So, if with sulphur, it would be called sulphide of silver, silver sulphide, or argentic sulphide, and its formula, Ag<sub>2</sub>S; or zinc and oxygen would be oxide of zinc, or zinc oxide; or, putting zinc in the form of an adjective, zincic oxide, and its formula ZnO.\*

Often also, when the name of the metal ends in um, a name for the oxide is formed by changing the um to a, as, for instance, oxide of aluminum, alumina; oxide of barium, baryta; oxide of magnesium, magnesia; oxide of potassium, potassa; oxide of sodium, soda.

It is often the case that oxygen combines with an element in different proportions; such element has several oxides, and there is a necessity to distinguish them by their names. This is accomplished by the use of prefixes from the Greek: proto, first; deuto, second; trito, third; tessaro, fourth; pent, five; hyper, or per, highest; for example: The first oxide of osmium is called the protoxide of osmium, OsO; the second, deutoxide of osmium, OsO; the third, tritoxide of osmium, OsO; the fourth, tessaroxide or peroxide of osmium, OsO.

Quite frequently Latin prefixes are used in place of the Greek. With these OsO would be monoxide of osmium, OsO<sub>2</sub> binox-

<sup>\*</sup> There are also Latin names for compounds, but as they are met with so very, very seldom at present, no mention will be made of them here.

ide of osmium, OsO<sub>3</sub> teroxide, OsO<sub>4</sub> tetroxide of osmium. Then again, like with mercury, we may have the protoxide HgO, and another Hg<sub>2</sub>O; the latter would be called the suboxide (sub, below), because it is below or lower than the protoxide; or, again, we may have as with manganese: 1, MnO, the protoxide; 2, Mn<sub>2</sub>O<sub>3</sub>; 3, MnO<sub>2</sub>, the binoxide. What shall No. 2 be called? We see that there is two of Mn and three of O; the one is to the other as two to three, or as one to one and a half; so the Latin sesqui (one and a half) is used. No. 2 is then the one-and-a-half oxide, the sesquioxide.

These prefixes are used in connection with chlorides, sulphides, etc., as well as with oxides, so that we have protochlorides, sesquichlorides, bisulphides, and so on through the whole list.

Mention has been made above of the method of expressing the oxide of a metal by making the name of that metal into an adjective; as for instance, oxide of zinc as zincic oxide; oxide of silver as argentic oxide. Where there are two oxides of a metal they are often distinguished by the termination of this adjective—that of the lower one ending in ous, and that of the higher in ic—as the suboxide of mercury (Hg<sub>2</sub>O), mercurous oxide; and the monoxide of mercury (HgO), as murcuric oxide; but as this is intimately connected with another subject (valence), more will be spoken of it further on.

If we write the symbols of hydrochloric acid and chloride of silver side by side, thus, HCl, AgCl, we see that the only difference between the two is that where the hydrogen is in one the silver is in the other; so we may say that the chloride of silver may be formed by replacing the hydrogen in hydrochloric acid by silver, atom for atom. Let us take again water and oxide of silver H2O, Ag<sub>2</sub>O; here we see that the oxide of silver may be considered as being formed by replacing the hydrogen of water by silver, atom for atom; but we may not go quite that far; if we replace but half of the hydrogen in water by silver, what will we have? AgHO, and this is what is called a hydrate, hydrate of silver. After this fashion all the hydrates are formed.

(To be continued.)

#### PHOTOGRAPHIC GIBBERISH.

T is estimated that there are at this moment in the world 72,4263 photographers, photographers' wives, and photographers' children; of this number, if we except those who are deaf and dumb, blind, and idiotic, and editors, there is not one who is not familiar with that mystic formulæ known as "put on a pleasant expression now;" "don't look too cross." And which member of the persuasion named, practiced in photography, does not habitually use one or the other of these forms of gibberish? How each successive generation of young photographers comes into the possession of this formula, is one of the most profound and difficult questions which ever came before the St. Louis Society for the Prevention of, etc., to solve. A superficial thinker would fancy that the solution of this problem is a very simple one, by making the hasty assumption that one generation teaches this gibberish to its successor, and that the knowledge of the formula is thus handed down with the other formula, from father to son; but can any photographer state a single instance in which he has imparted this knowledge to his son or daughter? If so, we wish his photograph for the embellishment of our magazine. We who are photographers, all know from our own experience that long before we arrive at the ability to focus and coat a plate, or became seized of our own personal child, that we have forgotten the lingo of our childhood, and hence were not in a condition to impart it to any one; but there seems to come a period when we hear our sons, or our pupils, rehearse this gibberish with confidence and accuracy, and we wonder from whence it was learned.

In whatever way the venerable formula comes into the possession of one generation, it is quite certain that it is not learned from the previous generation. Moreover, it is a noteworthy fact, that after much effort we have never been able to find any young photographer who was able to tell from whom he learned how to say "look pleasant now;" and if we ask any stripling in our art who taught him this stereotyped nonsense and first-class scare to all well-disposed

sitters, he invariably endeavors to change the subject without giving anything but an evasive answer.

We cannot tell how we ourselves learned it, and all our memory can tell us is, that there was an exceedingly remote period when we did not know it, and a somewhat later period when we found ourselves using it in the most pat form.

Here, then, we have the remarkable phenomena of an elaborate formula which everybody knows, without knowing from what source he learned it, and as to which we simply know that he did not learn it from the preceding generation. Whence comes this knowledge, and in what way has it been handed down since the year 1838 from generation to generation? This is a problem which the persistent president of the St. Louis Society for the Prevention of, etc., said he "would be hanged if he could solve," and of which Prof. Gelatino Carboni remarked, "that it is beyond the limit of our intellectual powers, and hence should not receive the slightest attention."

Some weak person has made the suggestion that this gibberish was brought from France by Daguerre, but if our French dictionary is a correct one, we can find no words in the French language that will represent any such nonsense. Even if it was inaugurated by Daguerre, that does not solve the question, how the formula has been handed down to the present day.

Socrates alluded to the matter once, if not twice, and is reported to have said to Alcibiades: "Tell me now, Alcibiades, whence did you learn to divine through, or by means of, 'put on a pleasant face now?' Did'st learn it from he who in preglacial times did attempt to depict the human face by mysterious formulæ and the agency of light?" To which Alcibiades replied: "I do not know." "Then," continued the sage, "it is impossible for you to ask me how it happened that I was last night found upon my cellar-door with a black eye; for he has no right to propose delicate personal conundrums who is unable, whether through his own dulness or the displeasure of the gods, to answer simple and easy questions in two syllables, even if the discolored eye is caused by a molecule of nitrate of photographic silver." This conversation shows that Socrates even perceived the mystery which enshrouds the subject, but it does not appear that he ever successfully penetrated it. As to his black eye, we all know how it might happen while brushing some interfering locust from his eye, when in the act of silvering his paper, lest the dreadful insect make tracks across his immaculate sheet of paper, albumenized with the eggs of the ostrich of the Sahara.

Now it is evident that if the knowledge of this strange formula is not handed by one generation to another, and we know perfectly well that it is not, it must be developed spontaneously in very small photographers' minds. The small photographer when a youth has his measles, chicken-pox, and his propensity for using the rule of thumb as applied to his father's nitrate of silver bottle for "goody" money, and he ought by analogy to have some form of mental disease peculiar to his age.

Medical men are well aware that talking in unknown tongues, or gibberish, as it is usually called, is a symptom of all sorts of forms of brain diseases. Let us suppose then, that when the young photographer suddenly breaks out with the curious formula mentioned, that it is a sure symptom of brain disease, just as the eruption which sometimes roughens very small boys' surface is the symptom of chicken-pox. This hypothesis fully explains the whole mystery satisfactorily.

Let us, for the sake of photographic progress, and for the prevention of brain diseases in general, hereafter adopt some other speech when about to make a photograph of an ordinary American nervous person; let us say "wet the lower lip," or "drop the right edge of the nose," or anything else, but never more hereafter use the dreadful gibberish that is now so prevalent, and whose history is wrapped in such mystery, and so far past finding out.

READ the testimonials in our current number of those who tell of what they have gained by reading photographic publications, and also the wails of those who have nelected to do so. Act wisely. Read!

#### A DENSE FOG.

MISERY likes company, they say; so, perhaps, I can be company for A. M. C. I see that he has had trouble with his bath, and that quite a variety of opinions has been given as to the cause; so, for the benefit of all concerned, I am persuaded to give a little experience of mine, as it is something quite new to me, and also to others with whom I have spoken.

I wish to be as short in my description as possible, but think I shall be better understood if I begin at the very first. Not long since I closed my dark-room door on Saturday, everything having worked as well as usual all day, but on commencing work on Monday morning, having prepared card plates for a sitting, made the exposure, and so forth, in the usual way, I prepared to develop, and in doing so what should I see in place of the image of the subject but a plate covered with a most dense fog, so much so that no image was visible in a very few seconds after the developer had covered the plate. This was indeed a surprise party to me, and one that I did not care to entertain just then, so I took measures to put it out. After business was over (having used another bath that day), I made neutral and evaporated a little, filtered, and tried the next morning, but with no better results. Again I set it aside until evening, determined to try a dose that I felt sure would bring it to terms, viz., fusing; this I did, and redissolved in the proper amount of ice-water to make the same amount of solution as at first, and filtered, ready to use in the morning; but, before using, thought I would test it for strength, as it might have lost some in fusing, and so it had; then added fresh crystals until it was at the right strength. So sure was I that I had burnt out all of the fog, and that I should have no more trouble, that I did not try a plate until I needed one for a sitting; had I done so, I should have been quite a little patient, and time ahead; for, believe me, every plate fogged as bad as ever.

Now in washing out my evaporating dish, I noticed quite an amount of mud in the bottom, and on examining found it to be full of very fine particles of metallic silver. I saved the mass on a filterer, and when dry

weighed it, and found it was about the same heft as the silver crystals that I had added. I was more completely puzzled, and did not work the bath any longer with it, so I set it aside and made a new bath, which worked all right.

After the holidays were over, and more time on hand, I poured into a bath and set it out in the light, intending to give it a good rest, and see what effect it would have; but standing by the window a few days after, I noticed something in the bath which proved to be very fine round crystals, about half an inch in length, looking as if some one had thrown a handful of short, white hair in, and it had gone to the bottom, lying loose in every direction. This was another puzzle, and I have been unable as yet to find a photographer that could give any light on the subject. I had intended to take some of the crystals to a chemist and see what he might have to say, but the solution froze, and in thawing they all dissolved, so I am up on that, unless they form again.

Now I have one more remedy to try after awhile, and will then give you the result of the experiment. Until then, I remain,

Yours, in a fog,

C. W. WHITE.

## SCATTERED THOUGHTS.

BY F. M. SPENCER.

SEVENTH PAPER.

(Continued from page 367.)

WHILE reading Mosaics for 1878, I was gratified by the indication that photography is passing out of the formula to the artistic stage of art; that it is surely merging from the purely mechanical to the artistic condition, that the end subordinates the means; indications that true art feeling is invading the field of photography everywhere, and is not this prophetic of a good time coming? With the consciousness of higher attainments and professional ability and reputation, comes å sensibility and dignity-a sort of aristocracy of feeling, which is rightfully the heritage of conscious powera power that always has, and surely will make itself respected wherever it hinges upon merit. Royal heads and plebian knees bend alike at its shrine.

If photography be suffering under financial burdens and depression, it is the more gratifying that its moral standing is being elevated; that its intellectual status is being lifted up to higher planes and wider usefulness; that its capabilities are forcing more general and higher recognition. Day by day is being deepened and widened the line that demarks the tyro who takes pictures, and the artist who makes them; a line having no existence, or but faintly traced a decade gone by, is so well defined now that dullards only fail to recognize it. The ranks of "dollar-a-dozen" and "itinerant" photographers are being more largely recruited from the ranks of "backsliders" than those of cobblers, blacksmiths, and hewers of wood and stone. Fewer now think it a wiz and way to magic fortune, and fewer seem inclined to squander their small savings for a few old traps and a few instructions; and since conversions from other fields of industry are less frequent, so the backsliders will be fewer.

The practice of engaging or instructing assistants to perform only such parts of the processes most useful or advantageous to the head of the establishment is rapidly becoming general, so that only those having the passion and greater fitness to master the whole process, and a fair knowledge of art principles, will graduate into proprietors; indeed, though by all means advisable, it is not necessary that the responsible head of large establishments should acquire a practical knowledge of all the mechanical details, but to be really successful he must understand the value of results, so that by this system only the finer material gets to the surface; or in other phrase, it is a sort of cuppling system, in which only noble metals escape oridation.

Every photographic establishment is a school; the poor schools are being wiped out, death overtaking some, the sheriff more. The better the school the smaller the percentage, and higher toned the graduates.

It is not well to be discouraged because of the discouragements and abuses of the present; exposed to the light everything will work itself clear; a contaminated bath will do it, so will photography. Abuses work their own cure. Those of us who in-

tend to keep on the elevated plane of our enchanting art should always be doing our best, remembering that our productions are like forest leaves swept by a November wind; they fall everywhere, some in high and some in low places; some upon poor and some upon good ground, and by the wayside; and, like autumn leaves, if beautiful, the common eye stops to admire them, perchance to gather a few. Every picture is a teacher, and if the teacher be good, endowed with good graces, the pupil will be made better and wiser. A gem cannot lie exposed to common gaze long unnoticed.

We can reap a richer, nobler reward than gold or silver (though these be necessary), for our works do follow us and multiply along our pathway. We cannot by word, pen, or pencil, project into being a beautiful thing, a single poetic idea, without making the world more beautiful, more goodly to live in than it was before. Good thoughts sent adrift in the world will never be lost; they are more imperishable than marble, silver, or carbon; they will live and grow brighter, after the vehicle that carried them forth may have taken many new forms of existence. Fools only work for the present, for the past steals the time to enjoy it the instant it is done.

As photographers, as artists, let us lend helping hands in our march onward, relying in the strength of unity, remembering that diamonds brighten by use, while self-ishness is a folly like a match, to be consumed by its own fire. If we are as keen in our intellectual as in our financial calculations, he who has the most ideas must see that he can best swap with those who have fewer to give; since he loses 'nothing by giving, and gains by receiving, the relative standing remains unchanged.

Having indulged in as many flighty sentences as may be good for one time, I will add an item or two, more practical perhaps, though theoretical also. I must give in my adhesion to friend Clemons's idea of one of the most frequent, and I fear not well-understood causes of the fading or yellowing of silver prints, viz., the presence of free nitrate in the paper before passing through the hypo bath.

Nitrate of silver is an exceedingly pene-

trating salt, and to a considerable extent passes into the fibres of the paper, becoming so imbedded that thorough washing alone will not surely remove it all. Now it is obvious that if any nitrate be in the paper when passed into the fixing bath, it will be converted into an insoluble sulphide of silver, and fading surely follows; therefore, thorough washing before toning should not be neglected; then, if the toning bath contains, as it should, a good percentage of sodium chloride, the free nitrate that remains is converted to chloride of silver, and is taken up soluble by the hyposulphite of soda, and is washed away with the soda, so that if the final washing has been thorough, no substance is left in the print capable of fading it. I cannot too strongly recommend Hearn's toning bath, with common salt and bicarbonate of soda.

The stock gold should be in solution, and decidedly acid with C. P. muriatic acid; pour enough of stock gold to tone into one corner of the toning tray, and neutralize; or, properly, just a little more than neutralize with a saturated solution of bicarbonate of soda; next pour in the desired quantity of water, and add one or two ounces of common salt ("Ashton" is best), and as soon as the salt is dissolved the bath is ready for use, and may be used over and over for some weeks, as it seems to improve for a time with age, always neutralizing the gold in the same way, and adding a little fresh salt. The salt seems to play a double part, that of holding the apparent as the real tone, and of eliminating every trace of free nitrate. If the first water in which the prints are washed passes off quite "milky" (as is the case with all water containing carbonates), as of lime, it is a good time to continue the washing until the last two or three washings pass off perfectly clear; then whatever free nitrate of silver may remain in the cells and fibres of the paper, will be converted to chloride in toning. The foregoing accords with my practice, and I am not troubled with faded and spotted prints; but I never stopped to study the reason of my practice, so far as the use of salt in the gold bath is concerned, until Mr. Clemons indicated to me his idea of the most prevalent cause of fading of prints.

A good sight-rest may be made by inserting a strip of wood  $5\frac{1}{4}$  feet long,  $\frac{5}{8}$  inch thick, and 11 inches wide, into a block six inches square, so that the strip may stand, or keep the perpendicular, and near the top, and two feet from the floor, cut five-eighth inch slats, through the thin way of the strip, of course, and take one or more card pictures and make incisions near the top and bottom wide enough to pass a half-inch tape through the bottom of the card from the face side, and up the back and out through the top slip to the face side again; pass the ends of the tape through the slots in the standard, and fasten the ends together on the opposite side so as to form an endless band, strained tight enough to remain at any point of adjustment given.

A tintype that has been over-developed may often be restored by the use of a solution of eyanide of potassium, containing a few drops of a solution of iodine, applied locally, or all over the plate, as desired.

#### FRENCH ITEMS.

[Translated for the Philadelphia Photographer.]

MANUFACTURE of PRINTERS' ROLL-ERS.—The manufacture of rollers for printing with fatty inks, so often used in photographic operations, consists essentially of the incorporation of a syrup of brown sugar with cabinet-maker's glue. The following proportions are often used:

Glue, of good quality, 2 kilos (54 ozs., Troy).
Syrup of Brown Sugar, 4½ litres (4¾ quarts).
Glycerin, . . . 240 c.c. (8 fluid ozs.)

These proportions are exact when the weather is rather warm, that is to say, for summer and autumn, but in winter the quantity of glue must be reduced to about 1.88 kilos (50 Troy ounces). The glue is enveloped in a woollen cloth, and allowed to soak until the pieces bend without breaking. This requires from two to three hours. The syrup is boiled for fifty minutes, and well skimmed; the glue is then added. The mixture is allowed to drain off all excess of water, and is then boiled for about twenty minutes. The glycerin is finally added, and this addition is followed by an ebullition of from three to four minutes, during which the whole is well stirred, and whilst the homogeneous mixture is still warm it is poured out to cool. There are a number of patents for the manufacture of this useful article. The essential point is to obtain a product which is not affected by variations of the temperature.—Moniteur.

Brown and Black Toning.—The question of brown and black toning appears to have been finally settled by Mr. Thomas Gulliver. For some years back this photographer has been making experiments in printing, and as regards the relative advantages of the two tones, he says that, having printed a large number of positives, he divided them into two groups; one-half he toned black in a lime bath, and the other half he toned brown (the tone now in fashion) in an acetate bath. At the end of three years, during which these prints were exposed as specimens in an album destined for the use of the public, it was found that those that had been toned black had undergone no change, whilst the others had faded, and were of the well-known yellow tint. Having examined afterwards the album of another photographer, in which were remarkable specimens of a brown tone, he remarked that seven-tenths of these prints had already faded in the same manner, although they had been but six months in the album .- Moniteur.

Mr. J. Levy, the skilful stereoscopist, so well known all over the world, does not confine himself to this specialty; and the ordinary paper views made by him have had as much success as his transparent views on glass. His travels and his numerous collections of single views have been justly admired. Now, without leaving Paris, the industrious artist has just completed two albums of great interest; the first comprises a series of interior and exterior views of the new opera house; the second, the reproductions of the principal masterpieces of the Museum of Antiquities.

We need not dwell upon the difficulties against which Mr. Levy has had to contend in making these pictures—difficulties that he has overcome by the master hand due to his incomparable practice. In the galleries of the Louvre, as well as in the foyers, stairways, and basements of the

marvellous theatre, very little light can find its way; the operator, besides, has to contend against the effects produced by the gildings, paintings, crystals, etc. One would not suspect these difficulties when inspecting prints of such harmonious modelling and delicacy of detail as those composing the albums to which we have referred.—Moniteur.

ON THE SIZING OF PAPER.-Everything concerning paper and its manufacture interests in the highest degree the photographic world; this is why I think it proper to call attention to a discovery recently made by Mr. Wurster, in his experiments in sizing. It is well known that the sizing of paper is generally done with alum and a resinous soap (obtained by treating resin with carbonate of soda). The reaction of this mixture forms a special substance, called resinate of aluminum, which is insoluble, and which, it is said, fills the pores of the paper so that it no longer absorbs ink and colors. The author of the experiments in question, having made the analysis of sized paper, has found that its non-absorbing property depends solely upon the uncombined resin, and he calls attention to the fact that it is possible to obtain resin so finely divided that its particles can pass through a slightly porous filtering paper. over, that resin in this condition is the best known medium for the sizing of paper. The author dissolves the resin by means of carbonate of soda, so that in largely diluting the liquid the resin is not precipitated in flakes, but gives a milky liquid, composed of resinous particles in suspension. In this liquid is plunged the paper to be sized. Thus treated, the paper is well prepared to resist the action of water and weak acids, but not that of alkalies or liquids that dissolve resin .- Moniteur.

Focussing in Photographic Operations.—Focusing in photographic operations is a difficult question to solve, and of very great importance to avoid distortion. To reach the perfect correctness of lines and the gradation of tones, which we seek for in photographic prints, whilst at the same time perspective is not lost sight of, I have arranged my camera as follows:

The lens and camera-front is movable in

every direction, and can be displaced vertically or otherwise, an indispensable condition for obtaining correct lines in architecture, whilst the camera is perfectly horizontal. The portion of the camera which receives the frame containing the sensitized plate is also movable in every direction, and can, at will, take the position desired and which seems the best for the object to be reproduced. When the image presents the proper appearance upon the ground-glass, I finish focussing by means of a magnifying or focussing glass by operating the brass work of the objective. With this arrangement of the camera it is possible to focus and define, without distortion, such portions as may be desired; increase or diminish the perspective; exaggerate, or reduce, and model, as it were, one's subject at will.

In landscapes, as in architecture, I obtain by this combination results which it was not possible for me to obtain with ordinary cameras.

It is also very important that the whole body of the camera should move on its platform, as in this case the operator has no trouble to focus to the precise point with the magnifying glass, as happens with fixed cameras, the end of which prevents the operator from approaching the ground-glass by striking against the pit of his stomach, thereby forcing him to neglect this delicate point in the focussing which should always be done with precision.

It is useless to say that all the sensitized plates should, when on the frame, perfectly coincide with the ground-glass, and that this correctness should be often verified, as owing to atmospheric changes, from one season to another, it undergoes variations which I have often observed. In bad photographic weather, during winter, it is well to examine the apparatus so as not to have to do so in the excursion season, which often causes a considerable loss of time and produces regretable failures.—E. Boivin.

It has been decided that the sun is exactly 93,321,000 miles distant from the earth, to a fraction. Some astronomers argue that there is a trifle of 200,000 miles discrepancy in this calculation, but so infinitely small is it that not much ado is made over it.

#### DUSTING PLATES.

BY JOHN M. BLAKE.

WHEN the air is cold and dry it will sometimes be difficult to dust a plate properly, on account of the electricity excited by the brush. When the back is brushed the particles of dust jump around the end on to the face, and then again, when the face is brushed, they jump around on to the back. The harder we brush the more we get into trouble. But no matter how excited a plate may have become, we can straighten things out at once as follows:

Dust the back again, and at once breathe on this back surface to form a conducting coating. This film of moisture, though very light, and on only one side of the plate, discharges the electricity on both sides. Then carefully and lightly dust the face, best before the moisture has evaporated from the back, and the adhering particles of dust will leave at once.

#### OBITUARY.

WE regret to learn that our old friend and correspondent, Adolph Braun, of Dornach, Alsace, died on the 31st of December, and thus has been taken away from us one of the brightest ornaments that ever graced the photographic profession; a man whose name should be forever honored for his wondrous ability and artistic taste. Our readers have been made familiar with his name ten years or more, by his reproductions after the old masters from every celebrated gallery in Europe, by the carbon process.

When Mr. Braun first began to publish these reproductions he sought a market in America, and it was our pleasure to act as his agent, and to first introduce these studies, now so popular and so largely used by artists.

In 1874, when in Europe, we had the privilege of spending two days with this distinguished photographer and good friend—days which we shall never forget, on account of the social pleasure which they brought, and the instruction. After our visit we described fully the immense establishment of Mr. Braun.

Few photographers reach the great honor which he has reached, and few become nearly so great in photography, and yet remain so genial and pleasant and willing to communicate. In this latter respect Mr. Braun was remarkable.

While we had the first copy of his new magazine, Light, before us, and our pen ready to write a review of this new venture of our enterprising friend, we learn of his death, much to our sorrow, and it is but fitting therefore that we should extract from Light a brief description of the history of the house of which Mr. Braun acted as the honored head.

#### "HISTORY OF OUR HOUSE.

"We think it useful, in making acquaintance with our readers, to give them a brief history of our house, from its creation in 1854 up to the present time.

"Our establishment cannot take to itself the credit for discoveries and inventions, properly so called, but we have many improvements to note. Our efforts have always had for their object the practical working of the new processes which have not ceased to appear since the birth of our art.

"The founder, Mr. Adolph Braun, at the present day one of the directors of the house, was originally a designer for the industrial branches. When photography was discovered, Mr. Braun was one of the first to take it up, and he utilized his leisure moments in following the different stages of its progress.

"In 1558, realizing the great future offered by this new science, he laid aside designing and gave himself up exclusively to photography; and whilst the new discovery was making the tour of the world, having portraiture for its sole end, Mr. Braun traced out for himself a more brilliant path, and triumphed over the ordinary worker and dealer by producing an artistic and brilliant collection of flowers, which by his arrangement became a masterpiece of grace and truthfulness.

"Switzerland, his picturesque neighbor, disclosed to him her charming sights to be reproduced by his camera, and many a tourist, thanks to these faithful reproductions, is enabled to recall the short and vivid impressions felt at the view of this grand and

beautiful scenery. France, Germany, Holland, Belgium, and Tyrol witnessed the operations of our house. In 1862 the house owned about fifteen hundred negatives of views taken in these different countries.

"In 1864 the Englishman, Swan, rendered practical the processes of Poitevin, Fargier, and Davies, and thus enabled Dornach to produce works that are indellible. It is from this time that dates the commencement of the collections named. We give below a list:

"1. Drawings, twenty-two collections; 2. Frescoes, four collections; 3. Statues, four collections; 4. Paintings, ten collections.

"The most marvellous production of Mr. Braun is, without fear of contradiction, the reproduction of the frescoes in the Sixtine Chapel, representing the creation of the earth and the last judgment.

"When we take into consideration the bad lighting of the ceiling (which is more than sixty feet from the ground), it is easy to conceive the difficulty of the undertaking.

"Finally, we would notice the collection of Egyptian views, taken at the time of the inauguration of the Isthmus of Suez, to which Mr. Braun had been invited by the French government.

"In 1869 Woodburytypy was introduced into the establishment.

"At the commencement of the year 1876, Mr. Braun, wishing to give a greater commercial impetus to his productions, organized a stock company under the style of Ad. Braun & Co."

The above does not begin to give one an idea of the immense work which this distinguished photographer has accomplished. He has rendered it possible for all lovers and students of art to study the works of the old masters and their drawings in their original colors, thus helping greatly towards the progress of art culture. We mourn his loss because he cannot be replaced, yet we take comfort in knowing that the great work which he has organized will be continued by his talented co-partners as before.

London photographers complain that the fog comes in their windows from the street. This is depressing.

#### GERMAN CORRESPONDENCE.

The New Year—The Past Year—New Photographic Journals in Germany—Action of Warnerke's Developer—The Photographer and the Police—New Varnish—Means to Protect the Negative Retouching—Collodion Filter Papers.

THE year has past. It was a common calendar year, and in regard to business it was very common or dull. It was a relief to everybody when the year was ended. If ever hopes for the better have got any prospects for realization it will be in Paris. The great exhibition approaches its achievement. The whole world is invited as guests. 'The world will go there and pay the expenses of the feast; the exhibitors will pay the most. They will have to suffer greatly for the pleasure of seeing Paris embellished by one curiosity more, and for all their sacrifice and their lost money they will simply be paid with a copper mint called "medal." Paris will do much business on this occasion; millions of friends will meet there again and offer the best they have—their money. I am curious about the issue of the rivalry in regard to photography. The French photographers lately remained far behind, and if American portrait photographers are going to exhibit in Paris the Parisians will have a hard fight.

Although the past year has been very bad for business, it has brought us some movers in photography. Several repairings at its framework are done, some new little rooms attached, or occasionally also a little tower put up to embellish it. In the theoretical part, Mr. Carey Lea has augmented our knowledge by some new observations about developer. He proved that there exists besides iron and pyro still various other developing substances. The profession has not yet made an advantageous use of his observations, but our knowledge has been amplified.

There are no remarkable surprises to be noticed in the practice of photography; no new style, no new effects are discovered, and we remember with a heavy heart the time when Adam Salomon and Rembrandt were in style. Even the carbon process has had but very little effect. Its use is limited to few establishments, and in Germany only used for

reproducing negatives, making transparencies, and enlargings. Important only for carbon printing are the improvements which Mr. Johnson recently published about this subject.

England worked indefatigably to perfect the dry-plate process. There are dry plates which are just as sensitive as our wet ones. Specimens have been exhibited which did not show a particle of difference with the results obtained by the wet-plate process. The dry plates were also prized, and nevertheless this process has had favor only among amateurs.

More successful has been the progress in heliography. Remarkable is in the first place the method of making glassdrucks (glass prints), published by the Royal State Printing Institute, of Berlin. The method, which is of an immense value in printing maps, will greatly depreciate the former methods of photo-lithography and photo-zincography.

The greatest progress has been made in Lichtdruck, in which now the use of colors will run the same opposition to chromolithography as it formerly did to lithography by the use of black only. Two successful methods were shown at the exhibition of Nuremburg, the authors of which were Obernetter and Albert. The first produced three Lichtdruck plates by means of three reproductions, after a negative in which certain parts are inked in a proper manner, so that only certain parts of the plate will receive color. Albert performs the production of his Lichtdruck plates after three negatives taken from nature, by means of properly colored glasses and collodion. The Lichtdruck plates are to be printed in the primitive colors-red, blue, and yellow. These colors will give all others when properly mixed. I communicated to you already the principle of this method in one of my former letters. Undoubtedly very interesting in its principle, this method will always present many difficulties. If, for instance, the negative for blue is over-exposed, the blue will print too pale; too short an exposure will give the whole a blue appearance. This is the same for red and yellow. The operation, how long it is to be exposed, can only be resolved by the operator.

Another kind of photographic curiosity is the growing effort in publishing photographic news. There exists now in Germany (Austria included) nine different journals, read by six thousand photographers. America has only four. The latest here is the Lichtbildkunst, which appears also in French under the title La Lumiere, published by Braun, of Dornach. Each number is accompanied by a picture.

I communicated to you in my last letter about Warnerke's emulsion. Further experiments have shown me that it is not the emulsion but the strong developer which produces the effect of such great sensitiveness. I prepared a brom-silver plate in the usual manner, by sensitizing a brom-silver collodion film in a silver-bath, washed, and let it dry. I exposed then this plate equally long with one of Warnerke's emulsion-plates, and developed with the same developer.

Fresh Solution of Carbonate

of Ammonium, . . 1:6, 15 cubic cent., Fresh Solution of Bromide

of Potassium, . . . 1:11, 5 drops, Fresh Solution of Pyro in

Alcohol, . . . 1:10, 25 to 50 drops; and I found out that my plates gave far more details than Warnerke's, that is to say, my plates were more sensitive under equal circumstances. The exposure was not longer than a wet plate required. The results are due to the strong developer.

Photography is now zealously applied by the high police, and so the albums of criminals are of great importance in the chief police office of this place. The number has lately been augmented in such a way that the whole collection has been divided into several subdivisions. number is now ten. The first division comprises the pictures of murderers, highwaymen, and incendiaries; the second, of burglars; the third, of pickpockets, and bedroom and cellar thieves; the fourth, of robbers in bills of exchange; the fifth, of cheats; the sixth, of forgers; the seventh, vicious characters; the eighth, bad women; the ninth includes the pictures sent from abroad; and the tenth, the pictures of people having been published by the Police Gazette. Every division has an alphabetical register,

and every picture is adjoining its respective police acts, by means of which people using false names are found out. Two officers have charge of these albums. The sight of them confuses the notions of mankind. Among the pictures are many hanging faces, but at the same time we see numbers of scoundrels with honest faces. It is strange to me that the criminals do not make more resistance to having their pictures taken. What can a policeman do when they are making grimaces? Such albums should be more accessible to the public, and especially to people who have more danger to apprehend from criminals-innkeepers, for instance.

A correspondent of mine, Belitzky, lately communicated a very good formula of varnish, susceptible for porous retouching.

To get this varnish more susceptible for the retouching, Belitzky advises that the surface be rubbed with castor oil, and wiped off afterwards with blotting-paper. This is better than the so-called matholëus, which has been recommended for this purpose. A known inconvenience of the pencil retouching for a large number of copies is the rubbing of it off. To avoid this, Belitzky fixes the retouching in a peculiar way. He applies a jet of alcoholic vapor. The plate is placed in an inclined position at a distance of ten centimetres from the jet, until the faint retouching spots grow shiny. The retouching will then have penetrated the varnish and become fixed. The operation requires some care and practice, which can easily be got by trials with old, useless negatives. In case the jet of steam has been too long in action, the varnish becomes liquid. When that occurs all the varnish is to be taken off with alcohol of eighty-three per cent., and the plate revarnished.

Every photographer knows the difficulty of filtering collodion. A paper from Japan, especially fitted for this purpose, has lately been introduced in our trade. Collodion flows through it just as quickly as water through common filtering paper. I can recommend it.

Very truly, H. VOGEL.

#### FRENCH CORRESPONDENCE.

Progress in Photography—The January
Meeting of the Photographic Society of
France—On Intensification and Development—A Report on Emulsions—Death of
Mons. Braun—Presentation by Mons. Carette—A New and Interesting Photo-lithographic Process by Mons. Gobert, of the
Bank of France.

A FTER a long and severe illness, I have once more the pleasure of addressing the sympathizing readers of the *Philadelphia Photographer*.\* The moment, I hope, is one of good augur, being the beginning of A.D. 1878; I therefore seize the occasion of wishing all a happy and prosperous New Year.

Since my last communication nothing in the form of a startling discovery has been made to astonish the photographic community, nevertheless progress has been made; the principal object now being to devote more time and labor in investigating and ameliorating the different processes already known, and the better class of work now turned out is a proof that this object has been attained by many.

The photographic societies are not slow in furthering that desirable object by offering prizes in order to excite emulation. The French Society is not behindhand, and by a "concours" and a prize offered, the emulsion process, formerly so obscure, is now so certain and so easy, that the least knowledge of chemical manipulations suffices to prepare washed emulsions with ease. Chardon, the "laureat," does not pretend to have made a discovery, only to have simplified the process. The same Society, contented with the results obtained, proposed two other "concours," which are now closed; the first having for its object a simple and practical means of doing away with glass for dry-plate work, and replacing it by a tissue or pellicle. This "concours" is international. The second, in which Frenchmen alone can take part, has for its object improvement in travelling apparatus, in order to render the photographic luggage at the same time light and solid, with facility of transportation in countries not blessed with railroads.

For the first prize, only one competitor has presented himself; for the second, four have come forward. In my next I hope to be able to give my American readers the drawings and descriptions of the apparatus which has obtained the palm.

Yesterday evening, at eight o'clock, the French Society of Photography held its January meeting, Mons. Davanne in the chair.

During the reading of the correspondence, a short discussion took place on the value of two proposals made by a gentleman whose name I could not hear well. The first was on intensifying negatives when under-ex-He proposed a small amount of posed. nitrate and pyro to be added to the iron developer. The second was, he said, a new discovery. If the half-tones of a negative do not come out well after intensification through under-exposure, if a camel's-hair brush be taken and dipped into fine black lead (plumbazine), and passed very lightly over the surface, many details will come out, even those invisible to the naked eye. I informed the Society that I had proposed and employed for many years an impalpable red powder called "sanguine," which was passed lightly over the half-tones by means of a paper "estompe," which brought out apparently the details, but had for its principal object to hinder the rays of light passing too freely through the half-tones, and by so doing giving time to the sun to penetrate through the intensified parts of the negative, and so to form a harmonious picture. This must only be done when it is impossible to take another negative. As to intensifying under-exposed negatives, it is the worst thing that can be done; develop as much as possible, but never intensify; leave it for over-exposed negatives.

A report was then made by the commission of emulsions, from which it may be learned that paper has a very prejudicial effect upon dry emulsion, whether the emulsion be as a powder or as a pellicle upon glass. The commission had sent samples to

<sup>\*</sup> No doubt our readers join in a friendly welcome to Prof. Stebbing again, trusting that his health is entirely recovered, and hoping that he may long serve as our esteemed co-worker.—Ed. P. P.

China. Those wrapped in paper were spoiled, whereas in a glass bottle the dry powder was as good as when sent out. On a sample of dry plates a ticket had been placed on the plate opposite; although separated by a distance of at least three-eighths of an inch, the exact form of the ticket was to be found, and upon this spot the emulsion pellicle had completely lost its sensibility.

As to the emulsions in a wet form ready for use, they were found to be of very little use; giving another proof to the knowledge already obtained, that wet emulsions can hardly be expected to remain good longer than a month or two, if allowed to remain perfectly at rest during that time.

Mons. Braun, of Dornach (Alsace), who had won fame in the photographic profession, intended to have made, on Friday evening, a presentation of fatty ink proofs. Alas! the Society was informed of the sudden death of that gentleman. The President, in enumerating the good deeds of that pioneer of photography, expressed the loss sustained, and the sorrow of the Society for such a bereavement.

Mons. Caratte, the intelligent merchant of photographic materials, presented a new product which replaces with advantage gum arabic to retouch upon. Several of the members took samples to experiment upon, and will give their opinion at the next meeting.

The most interesting and instructive communication of the evening, was upon a new photographic process by Mons. Gobert, of the Bank of France.

This gentleman gave a rapid history of the value of the lithographic stone, of the difficulties to obtain it, and its probable disappearance ere long from the market, if new quarries could not be found. Under these circumstances anything which could replace it would be a great boon to commerce; that is why, said he, I have been studying to replace it by plate glass, of which we have no fear of having a scarcity, and I have succeeded beyond my expectations; the only novelty being in the employment of ground-glass. As to the photographic and lithographic manipulations, they are well known, and I have not changed them.

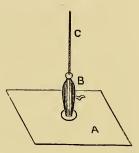
Mons. Gobert takes a ground-glass, made

rough either by an acid or by any mechanical means. On the finely ground surface be pours the following mixture:

Albumen, . . . 100 ozs. Bichromate of Potash, . 3 ozs.;

the plate being held all the time by an indiarubber holder. When covered, the plate is turned upside down, and hooked upon a piece of string hanging from the ceiling by means of an iron eye screwed into the handle of the plate-holder; the plate is now made to turn rapidly, in order that the centrifugal force may bring the solution on the surface as even and as thin as possible.

A, groundglass plate covered with the bichromated solution of albumen; B, pneumatic plateholder; C, a piece of twine or cord attached to ceiling.



It is necessary to have the prepared surface as thin as possible. When dry, it is put into the screw-press or printing-frame, under the object to be reproduced; if placed in the sun an exposure of one or two seconds suffices; if in the shade naturally more is required.

When exposed the plate is taken into the dark-room, and without any preliminary operation it is inked over with ordinary printing ink; the ink sticks to every part and makes it look like a blackboard. The glass is then plunged into a tray containing water, when immediately the ink breaks up like, as it were, a sea of ice, from all the parts on which the light had no action, and leaves the image standing out in bold relief. All that is necessary now is to send it to an ordinary lithographer to have as many prints as may be required. From 200 to 1000 may be printed off the same plate. This idea will be very fruitful, I am certain, and although only line engraving can as yet be obtained, who knows but what ere long the half-tones may be produced with ease? As to sharpness and fineness of execution in the reproduction of some bank notes which were handed

round, nothing could be desired; they were admirable in finish and execution.

The exhibition which will be opened next May will give a stimulus to the photographic art. We look forward to it with pleasure, as we are certain that the meeting and gathering together from all parts of so many celebrated in art cannot fail to be a great gain to all.

PROF. E. STEBBING.

27 Rue des Aperrins, Paris, Jan. 5th, 1878.

### SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILA-DELPHIA.—Stated meeting held Thursday evening, December 6th 1877, Vice-President Mr. John Carbutt in the chair.

The minutes of the last meeting were read and approved.

The Corresponding Secretary reported that he had sent the names of the officers to the editor of the *British Journal of Photography*.

The certificate of Centennial stock belonging to the Society was placed in the hands of the Room Committee for framing.

Mr. Samuel M. Fox was duly elected to membership.

On motion, it was resolved that a copy of the minutes be sent to the *British Journal of Photography* for publication.

Dr. Seiler exhibited some prints illustrating the latitude of exposure allowable with washed emulsion dry plates.

Mr. Bates showed a hot-water apparatus for drying plates. It was very conveniently arranged, and could be kept at a uniform temperature by means of a spirit-lamp or gas-burner.

Mr. Corlies laid upon the table an interesting collection of prints presented by Dr. McQuillin.

On motion, a vote of thanks was tendered to Dr. McQuillin for the donation.

Mr. Zentmayer exhibited a number of prints by Robert Benecke, of St. Louis, Mo., illustrating various stages of progress in the construction of the bridge across the Mississippi River at that place. These views were made with the Zentmayer lens, and were considered fine specimens of photography.

On motion of Mr. Browne, the Room

Committee were instructed to devise means to improve the illumination of the room, and to revise the list of members.

Mr. Corlies exhibited a number of excellent dry-plate pictures made on the Wissahickon.

Mr. Browne called the attention of the Society to a material now used by surgeons in place of lint. It was similar to a very heavy and porous blotting-paper, and had been found useful in many photographic operations.

The Secretary exhibited a print from every plate exposed by him during the summer, showing the certainty with which the washed emulsion process could be worked.

On motion, adjourned.

D. Anson Partridge, Recording Secretary.

PHOTOGRAPHIC SOCIETY OF PHILADEL-PHIA.—Regular monthly meeting held Thursday evening, January 3d, 1878, the President, Mr. Ellerslie Wallace, Jr., in the chair.

The minutes of the last meeting were read and approved.

Mr. Dixon, on behalf of the Room Committee, reported that new gas-burners had been provided for the room, and that the list of members had been corrected.

On motion, a vote of thanks was tendered to the Room Committee for the improvements.

Messrs, Frank Bacon and C. M. Gilbert were nominated for membership.

Mr. Browne moved that the meetings of this Society be held semi-monthly during the months of November, December, January, February, March, April, and May.

This being a proposed change in the bylaws, was laid over until the February meeting.

On motion of Dr. Seiler, it was resolved that a lantern exhibition be held at the Franklin Institute under the auspices of the Society.

Mr. Hewitt moved that the Chair appoint a committee to fix time and place, and make other necessary arrangements. Carried.

The Chair appointed as the committee Messrs. Hewitt, Browne, and Partridge.

It was decided, on motion of Mr. Browne,

to select the slides for exhibition from the collection of Mr. Bates, who had kindly offered them to the Society.

The President exhibited a number of novel and interesting pieces of apparatus, including a beautifully made changing-box for whole sized plates, by Hare, of London; an exceedingly compact plate-rack, and a nonactinic shade made of orange-colored gelatin, useful for preparing and developing plates by when travelling.

Mr. McCollin exhibited a number of successful prints from washed emulsion negatives.

Dr. Seiler inquired if any one of the members had used formic acid in the iron developer for wet work, and if any gain in rapidity had resulted from its use.

Mr. Bell, in reply, said that in his hands the addition of formic acid was no improvement

Mr. Hewitt said that a developer, composed of sulphate of copper, pyrogallic acid, and formic acid, was the most rapid he had ever used.

Mr. Bell claimed that for general work the double sulphate of iron and ammonia made the best developer in use.

On motion, adjourned.

D. Anson Partridge, Recording Secretary.

PENNSYLVANIA PHOTOGRAPHIC Association.—The regular stated meeting of the Pennsylvania Photographic Association was held on Tuesday evening, January 8th, at Mahan & Keller's, 1427 Ridge Avenue, President H. S. Keller in the chair.

The questions laid over from the last meeting were disposed of as follows:

Question 1.—" Will a print from a strong negative last longer than one printed from a weak negative?"

The opinion of the members present was that a print from a strong negative would last longer, as it will print deeper and tone more richly.

Question 2.—" Why will an old bath give better results when nearly exhausted?"

Considerable discussion was had on this question, but the meeting could come to no conclusion as to the cause.

Question 3.—" What is the cause of pinholes in negatives?"

The questioner not giving the state of his bath, the members did not feel disposed to give their views on it, as there are so many causes.

Several other questions were laid over for the next meeting; after which, Presidentelect for 1878, J. C. Steinman, took the chair.

Mr. Clemons showed some very fine toned prints, which were toned in a saturated solution of borax, one ounce; water, six ounces; bicarbonate of soda, thirty grains; gold, sufficient to tone; before toning, wash well, and redden in salt solution.

On motion, adjourned.

THOMAS T. MAHAN,
Secretary.

CHICAGO PHOTOGRAPHIC ASSOCIATION.— At a meeting of the Chicago Photographic Association held in their rooms, 229 and 231 State Street (Charles W. Stevens' photographic warehouse), the following were elected officers for the ensuing year:

Joshua Smith, President; George J. Klein, First Vice-President; G. A. Douglass, Second Vice-President; A. Hall, Secretary; O. F. Weaver, Treasurer; P. B. Greene, R. Cunningham, and E. Harwick, Executive Committee.

John Mauntford, photographer, aged 45, born at New Castle-on-Tyne, England, died in this city January 12th.

Fraternally, G. A. Douglass.

## AWARD OF THE GOLD MEDAL PRIZE.

WE now come to the pleasant duty of announcing the result of the prize contest for the gold medal offered by us some time ago, under very close restrictions, for the best six negatives sent us by the 20th of January. There were in all fourteen competitors, which is quite an encouraging number, considering the times. We will endeavor to review the pictures briefly, in order that our readers may have an idea of their character, and, as usual, will print from the negatives sets for the competitors, and selections for the study of those who may wish to avail themselves of the privilege. We have received a great many interesting letters from the parties, the pub-

lication of which we must lay over until our next. There will be at least four or five competing pictures which we shall present to our readers from month to month.

As a whole, the collection gives us considerable encouragement, because we do not remember in any prize series to have had prima faciæ evidence of so much conscientious care, and effort to do well, which these, as a whole, display. At the same time, we think that a number of leading ones who have made the best technical work have blundered alike in a direction which is without excuse. Instead of first conceiving an idea, or a composition, and then making effort to work it up to a success, they have gone no further than to secure their model, and then experiment with it from one position to another, and from one method of lighting to another, to the extent of six negatives; and then instead of going back and reviewing these six, and selecting the best for repetition, they sent us the first six. This hardly comes up to the meaning of our offer, and is not really sending us six negatives equally good, because in a number of these cases only two of the six, say, are good, while the rest are scarcely medium. In the case of the gentleman to whom the prize was awarded, however, the most conscientious care seems to have been taken throughout. He has evidently formed his plan before posing his subject, and has worked up to it as nearly as possible throughout, so that all of his negatives are equally meritorious. Thus he succeeded in capturing the unanimous vote of the judges. The judges are gentlemen well known in photography, two of them practical operators, and the other competent to fill the position, particularly as to the technical negative qualities. These gentlemen have addressed us as follows:

"Having examined the negatives and prints sent in competition for the gold medal offered by Mr. Edward L. Wilson for the best six negatives, we unanimously award the prize to Mr. G. M. Elton, of Palmyra, N. Y., he having displayed the most artistic skill, combined with a high degree of photographic excellence.

"C. M. GILBERT.

"A. L. HANCE.

" R. J. Сните."

Although we had no voice in this matter, and were not present at the examination, we cordially concur with the opinion of the judges, and congratulate Mr. Elton on his success.

We will now mention the subjects offered briefly, in the order they were received, as near as we can remember.

From Mr. J. Landy, Cincinnati, Ohio, six exquisitely made negatives of Miss Jeffries Lewis, the actress, varying in pose, tragic and comic, in oriental costume; very fine.

From Mr. J. A. Todd, Sacramento, California, six negatives of a lady standing, toying with a pet bird. They are very pretty, technically, and the idea throughout is preserved nicely.

From Mr. A. Hesler, Evanston, Illinois, six negatives of a little child, whose sweetest and prettiest expression has been caught over and over again very successfully. Mr. Hesler has paid more attention to secure this than other qualities, which of course he had to ignore.

From Mr. J. H. Lamson, Portland, Maine, six negatives of a very pretty young lady; not up, we think, to Mr. Lamson's regular work, and having the fault, as before mentioned, of varying too much in pose, the merits of which also vary.

From Mr. Cook Ely, Oshkosh, Wisconsin, six negatives of a young girl in costume, posed, we should say, as a faggot gatherer. It represents the young miss out in the woods in the snow, with a bundle of faggots gathered upon her shoulders. She has performed her part, so far as expression and attitude is concerned, remarkably well.

From Mr. D. H. Anderson, Richmond, Virginia, six negatives of a lady in walking costume, with one exception, which are very fine, and among the best sent; the judges, however, seem to lean towards the work of Mr. Elton, though much inclined towards Mr. Anderson's.

From Mr. C. W. Motes, Atlanta, Georgia, six negatives of an old bearded man, a very good artistic subject, similar to the one given us by Kurtz, of New York, a few years ago, and very cleverly treated. We hope Mr. Motes will make effort again at the next competition.

From Mr. C. W. Tallman, Batavia, New York, six negatives of a young lady, posed in as many attitudes and styles, and very pleasant, and very nicely treated; but, as mentioned above, there is great choice in the examples sent. Try again.

From Mr. Julius Hall, Great Barrington, Massachusetts, six negatives of a young lady, to which the same remarks may be applied as those of Mr. Tallman, and we express the same hope with reference to Mr. Hall's work.

From Mr. J. H. Beebe, Chicago, Illinois, six negatives of a lady standing, represented in as many different moods or mental conditions as there are negatives, such as "idleness," "study," "industry," "castle building," "meditation," and "reverie." Mr. Beebe has evidently taken very conscientious care with his work, but we think we have seen him excel it.

From Mr. M. T. Baldwin, Chicago, Illinois, six negatives of a lady dressed in various costumes, and attitudes, which variations rather dimmed them in the eyes of the judges, for the reason already mentioned, the negatives not being equally good.

From Mr. L. M. Roberts, Springfield, Ohio, six negatives of a lady, variously posed, which average nicely, both as to grace of position and artistic lighting, and which rank very well throughout. Try again next time.

From Mr. R. W. Dawson, Blair, Nebraska, six negatives of a young lady, which he has posed to represent "Thinking," or "Turning over a New Leaf." Mr. Dawson has come into the rule, by carrying out the same idea in each of the negatives, but his photographic technicalities do not quite come up to the thinking of the judges.

From Messrs. Bradley & Rulofson, San Francisco, California, six negatives of an actress in party dress, which are very excellent, indeed, technically and artistically, in almost every respect, except they, too, vary more in pose than should be, for the reasons named. These variations make it very difficult for us, when issuing good pictures with the magazine, to make any general comments which would apply to all; for when a person is posed for a bust picture in one negative, or a three-quarter standing in another, or a full-length stand-

ing in another, or a full figure sitting in another, and a profile in one, and a full face in the last, it is extremely hard to comment thereon with any satisfaction to ourselves or the reader. This work, however, is superb, though not at all in advance in any respect of the work which secured the prize for these gentlemen previously. We condole with them over their loss, and hope they will not be discouraged, but try again.

The successful pictures, by Mr. Elton, are worthy of very high praise. We have already alluded to his panel style of picture, and described it in our last number. These of the competing picture are of that style. In making them, Mr. Elton has very evidently studied his backgrounds, and his accessories, and his choice of subject, and his lighting, and his chemical manipulations, and his finish throughout with great care and excellent artistic taste. They represent a young lady who, stepping across the drawing-room, and stopping in front of the mantel, is detained by some pleasurable fancy, and standing, as she does, her figure receives the light chiefly from the window near by, and apparently, though unseen, a gentle light from a window back of her falls upon her figure, and is thus taken.

Mr. Elton has sent us some very interesting remarks concerning the picture, but we shall reserve them to present to our readers when the picture appears in our magazine, which will probably be before very long. Moreover, we shall then have more to say ourselves concerning the subject, when our readers can have it to look upon at the time of reading the remarks.

We now leave the subject with our readers, and hope that those who wish to improve will avail themselves of the opportunity of procuring copies for their studies. We should have been pleased to have seen a more general competition, and in fact, several who declared their intention to compete, failed to do so, for some reason known to them, but not to us.

The first of the prize series will appear in our next number, from the negatives by Mr. J. Landy, after which we hope to follow with the prize prints proper, and several others of the series.

#### PHOTOGRAPHIC NEWS.

M. VAN DER WEYDE is exciting the London public with his new method of nocturnal photography. The illuminating agency he employs is the electric light obtained from the Tiemen's magnetic battery, placed in a cellar, and driven by a gas engine of a few horse-power, controlled by the photographer in his studio upstairs. The sitter is posed first in gaslight, and is then lighted for the exposure by means of a large anular lens placed between him and the camera. This lens is about forty inches in diameter, constructed similar to the prisms employed in light-houses, backed by a truncated chamber, painted white inside. Within this chamber the carbon points are placed, just behind the centre of the lens, care being taken that no direct light falls upon the sitter. When all things are ready, the light is turned on by the operator, and presto the interior chamber! and behind the lens-box, becomes a cloud of light, which is condensed upon the sitter. Thus it is said that any effect of light can be secured. The exposures are said to vary from nine to ten seconds each, and the results are said to be admirable. We have had considerable experience in photographing with light at night, and the difficulties seem to be to control and modify it, and to get the proper focus. Perhaps Mr. Van der Weyde has overcome these in the electric light. The fault of all such artificial lights is their tendency to go out, and this is particularly the case with the electric light.

THE highest style of photographs have been made by Herr S. Riefelder, of Berne, some of whose ice mountain pictures were taken at an elevation of 10,000 feet.

In presenting the report of the Philadelphia exhibition to the Photographic Society of France, Monsieur Davanne said he was glad to observe in it that for the first time in his recollection, photography was officially ranked amongst the fine arts, which he considered was fairly due for the artistic quality displayed by many of its professors. So much for "Photographic Hall," my countrymen!

At the late meeting of the Photographic Society of France, Monsieur Taillefer, one

of the judges at the "Palais of Justice," expressed pleasure in exhibiting one of the useful applications of photography. During the arbitration of the cases arising from the appropriation of an immense amount of private property for a public service, called the "public ex-propriation," to enable the municipal council of Paris to make the new boulevard from the Grand Opera to the Palais Royal, a large number of claimants for compensation produced, to strengthen their cases, photographs of their respective properties. Those especially whose value was increased by their number of customers, such as owners of cafés, public houses, and retail shopkeepers, had secured instantaneous views, with a number of people figuring therein, giving life and scale to the proofs. photographic copies of architects' estimated plans, and elevations of buildings, to replace those taken for public utility. These photographs have been of much service to the jurymen, by permitting comparisons to be easily made, and to be referred to by judges and counsel. Compensations of £40,000 sterling to £160,000 sterling having been awarded, and lands sold up to £50 a yard, it will be seen that the cases were of vital importance, and that photography did serviceable duty.—British Journal.

DEXTRIN MUCILAGE.—As an adhesive, dextrin is superior to gum arabic in many instances. It is used for preparing the mucilage on backs of postage stamps and on the edges of envelopes. As a label paste, particularly on glassware, it forms an excellent mucilage.

Dextrin, . . . 2 ounces.
Acetic Acid, . . 1 ounce.
Water, . . . 5 ounces.
Alcohol, . . . 1 ounce.

The dextrin should be dissolved in the water and acid by means of a water-bath, and the alcohol added afterwards.—Druggists' Advertiser.

Some English country photographers, hard pushed for business, employ themselves in photographing the inscriptions on gravestones, which they send to the relatives of the deceased on approval. A rather *grave* business.

MONSIEUR RAOUL PICTET, the distin-

guished French chemist, succeeded, on the 21st of December last, for the first time in liquefying oxygen. Should his experiment be repeated until a cheap process of obtaining liquid oxygen is discovered, there will be no end to the value of such a means.

Specially valuable will the discovery be to exhibitors with magic lanterns, who may, instead of using the clumsy gas-bags, weights, cylinders, etc., be able to carry sufficient oxygen in a pocket to supply them for an entertainment.

## Editor's Table.

A NEW PHOTOGRAPHIC MAGAZINE .- We have received the first number of Light, a monthly review of photography and the kindred branches, edited by ADOLPH BRAUN & Co., Dornach, Alsace. This journal is to appear monthly, both in the German and French language. It contains from eighteen to twenty-four pages of text, and to foreign countries is about \$5.00 per year, post-paid. The contents of this present number includes a notice to the readers, a history of the house of Adolph Braun & Co., correspondence from Belgium, a very useful article on the "Alkalinity and Acidity in Photography," by Dr. JULIUS SCHNAUSS, an article on development, a department called "A Little of Everything," and notes upon the illustration, which this time is a capital picture of the "Venus de Milo," printed by the Woodbury process.

The get-up of the new journal is very neat, indeed, and tasteful. The editors say that, while they expect to secure and elucidate more completely than has hitherto been done the divers processes of permanent photographic printing, and to illustrate their publication by subjects chosen from the master subjects of ancient and modern art, such as shall serve as certain guides to the artistic operator, thus differing from the numerous reviews which already exist, yet they believe they shall be able to furnish useful information in all departments of the art.

Several scientific authorities have been called to their aid, whose special knowledge they will take advantage of. We sincerely wish for this new competitor for photographic favor a long and useful life, as well as a prosperous one. Any of our German and French readers who wish to subscribe for it may do so through us at the publishers' rate.

PICTURES RECEIVED.—From Mr. A. HESLER, Evanston Ill., some very expressive pictures of children in pretty attitudes, showing the wonderful power of the operator over the young subjects, as well as excellent photography.

From Mr. C. W. TALLMAN, Batavia, N. Y.,

some examples of cabinet and promenade size. Two, named "Off to School" and little "Daisy," are particularly pretty and sweet.

From Mr. H. A. JORDAN, Cedar Falls, Iowa, some examples of excellent work, showing a careful and studious operator and a good photographer. The picture entitled "Now You Don't Say So?" of two little girls dressed as maiden ladies, gossiping over a cup of tea, is very good.

From Mr. George H. Monroe, Rochester, N. Y., a set of ten card pictures from Kash's original drawings, illustrating ten scenes in a wedded life, which are very comical and side-splitting. Mr. Monroe also supplies lantern slides from these.

From Mr. Frederick York, London, England, we have photographs of Mr. H. M. Stanley, the African explorer, together with a group of the same gentleman with his Arab followers, photographed at Cape Town last November. Copies may be had of Mr. York.

Good Words.—This season of the year is usually the happiest for us, and yet the one which brings with it the most solicitation. Not much of the year elapses, however, generally, without our being flooded with every assurance on the part of our patrons in the shape of renewals of subscriptions, and with good words. We could not begin to ask space for the printing of these, but quote from one or two, as an example of what comes to us, and of what is very gratifying to one who strives to please. From away out in Seattle, Washington Territory, Mr. Geo. Moore writes:

"I am surprised that any fair or unfair man should for a moment think \$5.00 a year too high for such a magazine as the *Philadelphia Photographer*. Where would we photographers who are far away from large cities be were it not for the *Philadelphia Photographer*? I hope you will get rich out of it and be a millionaire."

Mr. FRANK THOMAS, of Columbia, Missouri, says: "I cannot do without your journal; am

perfectly lost without it, and you may consider me a subscriber as long as you publish it."

Mr. I. N. Cook, Tiskilwa, Illinois, says: "You can consider me a life subscriber as long as I and the journal live, and if you do not get your remittance, then you may know I am dead."

Mr. E. T. Whitney, of Norwalk, Connecticut, says: "I never paid \$5.00 so willingly as for the *Philadelphia Photographer*. Your December number was specially good, but they are all good, and I cannot live without them."

Mr. H. C. Norman, Natchez, Mississippi, says: "I concur with you in saying that Mosaics is worth its weight in gold, and as to your journal, to let you know how much I appreciate it, I never fail to read the contents in full, including all that is fresh to be found on yellow pages, and my only regret is to find my eyes perusing its last pages. My business has been continually on the increase, and I owe much of it to your magazine; for my customers no longer ask me, 'Why do you not make such work as this?' showing me that made by the best New York artists. I am able to do it myself."

Photographic News.—The Photographic Rays of Light is the title of a new quarterly to be published by Richard Walzl. We believe it was to begin with January, but it has not yet made its appearance this way.

Mr. John Q. Maynard, the champion lantern exhibitor, has been delighting Philadelphia audiences with his entertainments for some weeks. Some of the best effects we ever saw with the lantern are secured by Mr. Maynard.

Mr. John Cadwallader, Indianapolis, Indiana, receives a very handsome notice from one of the papers of that city, of his new gallery, which he has recently occupied, No. 66 East Washington Street. It is described as being remarkably convenient, his studio being on the second floor, with handsome reception-rooms, and all the appurtenances of a first-class establishment.

Mr. Frank F. Currier, Omaha, Nebraska, has also recently fitted up new rooms, which include a skylight 20 x 16, constructed on the most modern and improved plan, together with beautiful reception-rooms, and every other convenience for making the largest and best of work. The local newspaper speaks very highly of him.

Photographic Mosaics, 1878.—We do not think any previous issue of *Photographic Mosaics* has received such flattering testimonials as to its quality as the last issue. From all sides we are receiving commendations of it, and therefore

have the more confidence in recommending it to our readers as decidedly the best year-book in existence.

One of the contributors writes us from Cleveland, Ohio, and says: "The Mosaics came to hand OK, and it has been commended as the best of all Mosaics issued, in which I heartily agree, for there is many a rich photographic morsel which may be culled from its pages, and may be made to pay a hundred times over the cost of the book. It is my hope you will keep progressing, and that the 1879 issue will be the best of the book."

One hundred and forty-four pages for fifty cents, post-paid. Send in your orders.

ERRATA.—A few blunders have appeared in Mosaics for 1878. Mr. C. T. Stewart, of Cleveland, Ohio, writes that in his article the last word on the seventh line, page 97, should have been printed "on" rather than "in." Mr. J. E. SMALL says: "Please correct page 77; it should read "cut and mount true," instead of "dry." Mr. C. F. Richardson, Wakefield, Massachusetts, writes that on page 65, in the sixth line of his article, it is directed to use "C," when it should be "B." Any one accustomed to dry-plate work would not be misled, but a novice might. Please read accordingly.

A WORTHY DECORATION. - Mr. FREDERICK GUTEKUNST, of Philadelphia, has had conferred upon him by the Emperor of Austria, on account of the excellence of his productions in the photographic art, the decoration of the "Cross of the Knights of the Austrian Order of Franz Josef." This is a worthy tribute to a deserving man. No one has worked harder to elevate and sustain the character of photography than Mr. GUTEKUNST. There was a time when he stood at the very head of his profession, making work of a quality which none others seemed able to reach. We have worked alongside with him for a number of years, and know perhaps better than most do how faithfully he has striven to always excel. We congratulate him heartily on this new honor.

A WAIL FROM THE DISAPPOINTED.—We have had a number of letters recently, of which the following is an example: "I cannot drop my subscription to the ever-welcome monthly, the *Philadelphia Photographer*, which is always interesting, instructive, and certainly beneficial to me; in fact, I may say, indispensable to every student of the profession who wishes to succeed in the art of photography. I am sorry, finan-

cially sorry, that I was foolish enough to neglect my subscription to your journal throughout the year 1876, and in consequence was not on the alert, therefore not guarded against process venders who held out shining baits for the unguarded to bite at. I happened to bite, and I got fooled to the amount of —— dollars; well, say enough to pay my subscription to your journal for about thirty years. You may insert this in the Photographer if you see fit. I inclose \$5.00, and send your welcome visitor."—H. C. Tair, Bowmanville, Canada. Will any one take a lesson from this?

A VOICE FROM AUSTRALIA .- We have received from Messrs. Frearson & Bros., Adelaide, Australia, a map showing the journey which they propose to take through that great country to America, when in 1878 they promise us a personal visit. Messrs. Frearson & Bro. are merchants in all sorts of goods, including photographic requirements, and are the agents for our magazine. Photographers whom they call upon in their journey would do well to subscribe through them. Orders will be received by them for our books also. During their journeys they will visit the principal cities of Australia, east and west, and the Sandwich Islands and New Zealand, and thereafter America. We wish them success, and hope when we see them they will be burdened with subscriptions for us, and orders for American goods. We commend to them the houses who advertise in the Philadelphia Photographer.

REMOVAL .- WILSON, HOOD & Co., the oldestablished and well-known photographic stockhouse, finding their old quarters at No. 822 Arch Street too crowded and inconvenient, have resolved to move to the opposite side of the street, where, at No. 825 Arch Street, they will have one of the finest and best rooms devoted to their business in America. gentlemen are so well known for their honorable dealing and promptness in filling orders for the best goods, that they need no commendation from us. In order that they may not be injured by the prevalent report that we are ourselves personally interested in their concern, we once more aver that we are not, and hope that these gentlemen will not be damaged by such a report. May we not, however, wish them great success in their new undertaking without any inconsistency?

A NEW STATIONERY WAREHOUSE.—Messrs. E. E. Eckstein & Co. have opened a new station-

ery warehouse at No. 815 Arch Street, where they will keep an immense stock of blank books, envelopes, writing papers, and stationers' supplies. We have known Mr. Eckstein for a great many years, and can speak most favorably of his method of doing business, and his ability to do well for his patrons.

A New Gallery in Boston.—Mr. A. N. Hardy, the celebrated photographer of Boston, is now occupying his new studio at No. 493 Washington Street, which has been expressly arranged for his convenience, regardless of expense. Every attention has been devoted to render its appointments pleasant and agreeable to visitors. New lights and new conveniences of all kinds enable Mr. Hardy now better than ever to meet the pleasure of the public. Mr. Hardy has steadily gone forward and upward since he entered photography, and has won his eminence by merit. We wish him great success.

New Photographic Galleries in Philadel-Phia.—Messes. George and William H. Rau, at 922 Girard Avenue, have just occupied their newly refitted studio, which is one of the cosiest and neatest in this city. These gentlemen, being both excellent and practical photographers, of course have everything about them which insures good work and success. From the first floor, which contains their store-room, to the printing-room, everything is arranged in the most cleanly and workmanlike manner, showing that the gentlemanly proprietors understand their business. We wish them great success.

Mr. C. W. Hearn has taken unto himself a partner, given up his branch of printing for the trade, and opened a studio at the southwest corner of Ninth and Arch Streets, Philadelphia, where with more room and more facilities, he holds himself in readiness for a portion of the favor of the Philadelphia public. His partner, Mr. Morand, makes the negatives we understand, and no one can more faithfully attend to the printing than Mr. Hearn. We trust also that success will attend this new enterprise.

In Chestnut Street above Twelfth, we were surprised the other day to see that Mr. A. K. P. Trask, a gentleman well known to many of our readers, had the courage to open a splendid suite of rooms for photographic purposes, where he has one of the best appointed and arranged studios in the city. Mr. Trask is himself a capital operator, and having a good reputation in Philadelphia, will no doubt do well. We earnestly hope that he may. The Philadelphia public is an appreciative one, and all these gen-

tlemen can secure good patronage if they continue to make good work.

New Books.—Now that the times seem a little more promising, we shall put to press soon a new work on coloring, by Mr. John L. Gihon, and a second edition of Mr. Hearn's *Practical Printer*, which will be a great improvement on the first. More of this in our next issue.

Mr. J. C. Somerville, No. 8 South Fifth Street, St. Louis, Missouri, has sent us one of the most complete and extensive catalogues (illustrated) of photographic materials that we have yet seen. Not only does it give in detail lists of all the popular photographic goods, no matter where manufactured, but a list of show cases and frames for photographers, and at the back a number of pages are devoted to hints for the benefit of those who order goods and those who make photographs, including very useful formulæ, tables, etc. We do not remember having seen so complete a price-list as this. Mr. Somerville is very popular among his customers, and will no doubt have great success.

From the Photographic Plate Company, 63 Duane Street, New York, we have received a copy of their illustrated catalogue, giving some fine examples of photo-plate or block-printing with type. This process has been greatly perfected of late. See their advertisement.

A Good Opportunity.—We desire to call the attention of our readers to an advertisement in "Specialties," of a gallery for sale in Westboro', Massachusetts. This we know to have been recently newly and elegantly fitted up, and believe it to be a good opportunity. The proprietor only sells it on account of failing health. So well do we know him, that we believe his representations will be only such as are entirely correct in the matter. Address as advertised.

MR. L. W. SEAVEY, the background painter, thinks the following extract from one of his letters worthy a place in our pages, as follows: "Frank Robbins, of Meadville, Pa., writes me that he has a remarkable salesman, one who requires only eight minutes to talk a customer from tintypes up to a half dozen cabinets, and his name is MCLEAN. More power to him."

MR. J. LOEFFLER, of Tompkinsville, Staten Island, writes with reference to the Centennial stereoscopic pictures sent to him as his premium, as follows: "The stereoscopic pictures you have

so kindly sent to me have been received, and you have no idea what pleasure they give me; accept my sincerest thanks for them. The subjects also are of that kind that must interest every one having lived in this country at the time of the grand exhibition. Again my thanks for them."

THE MAGIC LANTERN.—Our readers are perhaps aware that we continue to publish the monthly journal devoted to the interests of the magic lantern, at \$1.00 per annum. It gives all the information which can be obtained concerning the working of the lantern in its various phases, from all parts of the world, and is well worth the subscription price.

MR. G. M. Bretts, of Pottsville, Pa., receives a very complimentary notice from the *Chronicle* of that city, which should certainly act as an incentive to him to do his best. His work is very highly praised by the *Chronicle*, which, no doubt, gives an honest opinion.

We regret to learn that Mr. W. T. Brooks, of Water Valley, Miss., was so unfortunate as to lose his gallery by fire last month. With his customary energy, however, he is going ahead again, and will no doubt soon be prosperous once more.

Hall & Co.'s Varnish.—In noticing the excellencies of this article last month, we made a great blunder in stating that Mr. J. C. Somerville, of St. Louis, was the exclusive agent for its sale. Messrs. Hall & Co. are not only the manufacturers, but are their own agents, and supply the photographic trade and stock trade everywhere, so that all orders should be addressed to them, as will be seen by their advertisement. If the sale of their varnish is equal to its excellencies, they should have a large business even by this time.

THE BURNISHER CONTEST.—It will be seen by the advertisement that what we have long hoped for has been accomplished, namely, the co-working of the manufacturers of the Entrekin and Weston patents. With such good burnishers available as these gentleman produce it will hardly pay any one to attempt an infringement, and before a burnisher is purchased other than these two, a photographer should be careful to satisfy himself that he does not purchase with it a lawsuit also. Personally we use both of the kinds named, and express no preference here. We do not know of anything better than they both are.

## Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line-in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. Re We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

A. LAMOR,

EDW. LAMOR,

ARTISTS.

Photographs finished in Water Colors, Crayon, or India Ink, in the highest style of the art.

PORTRAITS IN OIL A SPECIALTY.

Negatives finely retouched.

738 SANSOM STREET, PHILADELPHIA, PA.

## The Wonderful Euryscopic Lens. See Advertisement.

FOR SALE .- A portable frame photograph house, 12 x 22 feet, containing head-rests, background, dark-room tanks, chairs, wash-stand, looking-glass, glass-bath, collodion-vials, oilcloth, matting, three frames with specimens, all ready to go to work, except camera and stand. The whole for \$175 cash. Is at present located G. & W. H. RAU, in this city.

922 Girard Avenue, Philadelphia.

For Sale.—The leading gallery in northern Indiana; cost over \$2500 to fit up; will sell for \$1500 cash, or exchange for gallery in a seaport, worth about the same amount or less.

Address, PHOTOGRAPHER, 18 West Berry Street, Fort Wayne, Ind.

For Sale.—An old established place in a most desirable northeast city. Studio new last September, and everything new put in. Instruments of Scovill's (American Optical Co.'s) make, etc.; Seavey's grounds. Ill health compels me to give up the business. For further particulars, address Box 463, Westboro', Mass.

WANTED .-- A Solar Camera, either direct or reflector, large enough to print 25 x 30 inches. Must be cheap.

Address M. J., No. 10 Sixth St., Pittsburg, Pa.

"Coasting, Skating, Snow, and other Win-TER STUDIES."-Having many requests for examples of my winter photographs, and as I cannot afford to furnish so many gratis, I have determined to put them in the market as studies. They are cabinet size, and I will furnish them at \$6.00 per dozen, or 50 cents each, with directions how each picture was managed. Enclose price FRANK JEWELL,

Scranton, Pa.

## Waymouth's Vignette Papers.

FOR SALE .- The leading gallery in a city of over 40,000 inhabitants, elegantly furnished, conveniently arranged, and as fine a light as there is in the country. Notwithstanding the great depression of business last year (1877), this gallery did an average business of over \$100 per week. \$2500 Cash, and cash only, buys it.

Address, with stamp,
"ARTISTIC LIGHTING,"

Care Thos. H. McCollin, 624 Arch Street, Philadelphia, Pa.

LOST LENSES FOUND .- One 1 size, and one 4-4 size lens, found hidden in the woods near here, can be obtained by the owner applying, and stating number of the lenses, to

> R. GOEBEL. St. Charles, Mo.

#### Hance's Photographic Special-See Advertisement. ties.

Wanted .- A first-class operator, one who can pose and light artistically. To such a person steady employment and fair wages will be given. No one need apply who cannot fill the position indicated.

Specimens of work, and likeness of self, desired; the same will be returned.

DAVIS,

821 Broad St., Richmond, Va.

## USE WAYMOUTH'S VIGNETTE PAPERS.

#### EURYSCOPE.

A. C. North, Toledo, Ohio, writes, Oct. 1st, 1877: "I consider the Euryscope Lens you sent us the finest for the purpose you claim it for to be used. I have just tried it; it works quick, sharp, and gives no flare or marginal aberration. The finest lines are rendered with the greatest distinctness and accuracy, it covers sharp to the edge larger plates than it is listed for."

Wm. H. Roads, Philadelphia, Pa., writes, Nov. 30th, 1877: "I send you by mail to-day a 14x 17 photograph made with the new No. C. Euryscope, which will speak for itself. We have not done much work with new Lens, but what work we have done with it gives great satisfaction, and I can cheerfully recommend it to any one desiring a good instrument for general work."

L. Moberly, McKinney, Texas, writes, Nov. 23d, 1877: "The No. 2 Euryscope Lens received. I have just made an 8 x 10 group of seven persons with it; time twenty seconds, at half-past three in the afternoon, and cloudy at that, but all is perfectly sharp and crisp. I have tried a great many lenses, but this surpasses them all, and I could not ask a lens to do more. I feel under many obligations to Voigtlander & Son for the introduction of so valuable a Lens."

We have just received a good supply of all sizes of the Euryscope Lenses.

BENJ. FRENCH & Co., Boston, Mass.

## Hance's Photographic Specialties. See Advertisements.

GREAT chance to make money. If you can't get gold you can get LIDI greenbacks. We need a person in every town to take subscriptions for the largest cheapest, and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address

"The People's Journal,"

Portland, Maine.

Voigtlander & Son's new Euryscope will be found the most useful Lens any one can have for groups.

## Lantern Slides, \$5 per dozen.

Burrel's Chart and Hints to Patrons.—Your gallery is not complete without them. For particulars, see advertisement in January, February, and March, 1876, issues of this journal. Price, \$1.25, unmounted, by mail, or by express, mounted.

## The Wonderful Euryscopic Lens. See Advertisement.

### SEAVEY'S

NEW

## BACKGROUNDS AND ACCESSORIES

FOR THE

#### 1877-FALL AND WINTER CAMPAIGN.-1878

The newest fashionable Backgrounds introduced by New York Photographers, are

### Seavey's Snow Landscapes,

Price, per square foot, 25 cents.

Novel and superb pictures produced by using the above, in conjunction with our Winter Foregrounds. Sure to attract customers.

#### Seavey's New Interiors.

Rich in design and fine in execution, at from 25 to 30 cents per square foot.

Seavey's Antique Cabinets, never before offered to the public. Rich in design, . \$40 00 Seavey's Fireplace and Cabinet, com-

bined, an invaluable accessory, . . . 50 00 Seavey's Antique Chairs, . . . . . . 12 00

#### SARONY, KURTZ, MORA,

use no Backgrounds but SEAVEY'S.

Designs copyrighted.

Headquarters for leading styles in Photographic Backgrounds and Accessories,

L. W. SEAVEY'S Scenic Studio, 8 Lafayette Place, New York City.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

By a man of good and temperate habits; or would rent a good gallery on good terms. Can do anything pertaining to the art. Address Fred. H. Whitstruck, 86 Main St., La Crosse, Wis.

### USE WAYMOUTH'S VIGNETTE PAPERS.

As printer and toner in a first-class gallery, after the first of April next. For further particulars, address Lake Shore Studio, care Wildey, Artist, Box 43, Skaneateles, N. Y.

By one who can pose, operate, print, tone, and retouch; seven years' experience. West preferred. First-class recommendations. Specimens sent, etc. Address A. Franklin, La Fayette, Ind.

As assistant, by a boy of seventeen; is acquainted with all branches of the business. Salary not so much an object as chance for improvement and permanent situation. City or country. Address Photo, care Box 341, Salem, Col. Co., Ohio.

As operator; six years' experience in firstclass rooms; understands all branches of the art, also retouching. Address W. T. Batdorf, Milton, Northumberland Co., Pa.

As negative retoucher in a gallery. Can also paint photographs in oil. Address Miss L. Guerard, Aiken, S. C.

By a first-class operator and retoucher. No objection to Western cities. Address A. W. Partrick, care of John Graves, 951 Lexington Avenue, New York City.

By a man of several years' experience, in a gallery as negative retoucher, printer, and toner. Can operate. Present engagement expires May 1st, 1878. Address Photographer, care 224 Gloucester St., Ottawa City, Ontario.

By a No. 1 colorist in oil, water colors, and India ink. South or West preferred. Is strictly first-class, and will deal only with responsible parties. Address Artist, 101 South Jefferson St., Chicago, Ills.

By a young man thoroughly proficient in every branch of photography, in New York City or some neighboring town. Nine years' experience. Address C. A. M., care of G. P. Seroiss, N. Y. Sun, N. Y. City.

By a first-class lady artist, to paint for some large gallery in an Eastern city. Works in water colors and India ink first-class. Address Artist, 227 Perry St., Cleveland, Ohio.

By a young man; practical printer and toner. Has worked the carbon process. Will make himself generally useful. Can give reference. George Snook, Box 1117, Port Huron, Mich.

As operator or printer and toner, or would take a good gallery on shares. Address James W. Bailey, Newark, Ohio.

By a young man of over one year's experience, as retoucher and general assistant in gallery. Will work for small wages. Reference given if desired. Will A. Johnston, Coshocton, Coshocton Co., Ohio.

By a young man, in a first-class gallery, as printer and toner, negative retoucher, or mounter. Has had seven years' experience in best of galleries. Address Ed. F. Mason, 101 Hanover St., Cleveland, Ohio.

By a loperator, retoucher, or to take charge of a gery; well posted; seven years' experience. Wife is handy, and a good saleslady. No liquor or tobacco. Reference unexcelled. Garvey Donaldson, Dexter City, Ohio.

As printer and toner; has worked in first-class galleries. Good references. Address T. C. Beckett, 89 Sixteenth St., Wheeling, W. Va.

By a young man; can operate, print, and tone. Address J. A. McIntire, 2536 Columbia Avenue, Philadelphia, Pa.

A lady would like an opportunity to attend reception-room and finish negatives. Will send sample of both large and small work; also reference from the leading photographers of Boston. Has never worked but in first-class rooms. Would be obliged for reference in return. Address Mattie Reed, Taunton, Mass.

## G. SAUTER.

No. 138 SOUTH EIGHTH STREET, PHILADELPHIA,

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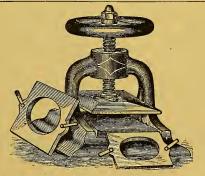
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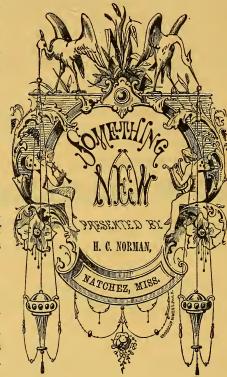
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A,		13/4 "		11 "		. 9¾ "		11 x 13,	•	8×10,	57 00
2,		2 "	•••••	12½ "		. 11 "	•••••	$12 \times 14$ ,		10 x 12,	. 70 00
C,		2½ "		16 "	•••••	. 14 "	*******	17 x 20,	•••••	14 × 17,	93 00
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66	3,	$5\frac{1}{2}$	66	66	$6\frac{1}{2}$	$\mathbf{x}$	$8\frac{1}{2}$	"	30	00	"	3	"	66	4	66		55	00
44	4,	8	66	"	10	X	$1\overline{2}$	ee .	42	00	- "	4	66	66	5	"		75	
- 64	5,	12	66	"	14	$\mathbf{x}$	17	"	60	00	"	5	66	"	6	"		110	
66	6,	18	"	"	20	$\mathbf{x}$	24	66	90	00	"	1.	2 aı	nd 3,		"		48	
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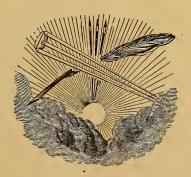
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## Robinson's Photograph Trimmer

IS A SUBSTITUTE FOR A KNIFE

FOR TRIMMING PHOTOGRAPHS, AND DOES THE WORK MUCH MORE EXPEDITIOUSLY AND ELEGANTLY THAN A KNIFE.

#### IT SAVES TIME, SAVES PRINTS, AND SAVES MONEY.

It does not cut but pinches off the waste paper, and leaves the print with a neatly beveled edge which facilitates the adherence of the print to the mount. Try one, and you will discard the knife and punch at once. For ovals and rounded corners it is worth its weight in gold.

#### A Trimmer and Ten Inches of Guides Mailed for \$3.50.

(Oil the Wheel Bearings with Sewing Machine Oil.)

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#### FOR USE with the ROBINSON PRINT-TRIMMER.

These Guides are Made of Stout Iron and are Turned in a Lathe, so that they are Mathematically True.

OVAL, ROUND, ELLIPTIC, and SQUARE, of all sizes; various shapes for Stereoscopic work, Drug Labels, etc., etc.

We have the following regular sizes always on hand at 10 cents per inch, the longest way of the aperture, the fractions counting as one inch.

Special sizes made to order at 15 cents per inch, the longest way of the aperture.

#### REGULAR SIZES:

	OVALS.		Square	or Round-Co	rnered.
$ \begin{array}{c} 2 \times 2\frac{7}{8} \\ 2\frac{1}{8} \times 3\frac{1}{8} \\ 2\frac{1}{8} \times 3\frac{1}{4} \\ 2\frac{3}{8} \times 3\frac{3}{8} \end{array} $	$3\frac{1}{2} \times 4\frac{7}{8}$ $3\frac{5}{8} \times 5\frac{1}{8}$ $4 \times 5\frac{3}{8}$ $4\frac{5}{8} \times 6\frac{3}{8}$	$5\frac{3}{4} \times 7\frac{3}{4}$ $6 \times 8$ $6\frac{1}{4} \times 8\frac{1}{4}$ $6\frac{1}{2} \times 8\frac{1}{2}$	$\begin{array}{c} 2\frac{1}{16} \times 3\frac{3}{4} \\ 2\frac{1}{8} \times 3\frac{3}{4} \\ 2\frac{1}{8} \times 3\frac{3}{4} \\ 2\frac{1}{8} \times 3\frac{3}{16} \\ 2\frac{1}{16} \times 3\frac{3}{16} \\ 2\frac{1}{16} \times 3\frac{3}{4} \end{array}$	$\begin{array}{c} 2^{-5}_{16} \times 3^{-7}_{8} \\ 2^{-7}_{4} \times 4^{-7}_{4} \\ 2^{-7}_{4} \times 4^{-7}_{4} \\ 2^{-7}_{8} \times 4^{-7}_{8} \\ 2^{-7}_{8} \times 4^{-7}_{8} \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$2\frac{5}{8} \times 3\frac{5}{8}$	5 x 7	7 x 9	For	Stereograph	ıs.
$2\frac{7}{8} \times 4\frac{1}{4}$	$5\frac{1}{4} \times 7\frac{1}{4}$	$7\frac{1}{4} \times 9\frac{1}{4}$	Arch Tops.	Round-Cornered.	Round.
$3\frac{3}{8} \times 4\frac{3}{8}$	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3_{16}^{1} \times 3_{4}^{3}$	$3\frac{1}{16} \times 3\frac{3}{4}$	3 x 3
33 x 45	53 x 75	$7\frac{3}{4} \times 9\frac{3}{4}$	3 x 3	3 x 3	

The above sizes suit the Collins Card Mounts, and photographers knowing that they can always be had at the low price of ten cents per inch, would do well to make their sizes accord, as orders can also be filled more quickly. Ten days is required to make special sizes.

EDWARD L. WILSON, Manufacturer's Agent,
PHILADELPHIA, PA.
FOR SALE BY ALL DEALERS.



## ROSS' Portrait and View Lenses

We have now successfully introduced to the American Photographers the Ross Lenses, and by our increased sales we know they are appreciated. At the Centennial Exhibition many fine photographs were exhibited by photographers, and ourselves, made with the Ross Lenses, which attracted great attention.

While Ross & Co. are the oldest manufacturers of Photographic Lenses in existence, they also keep up with the requirements of the fraternity, by constantly manufacturing new combinations and improving on those already in existence. They have lately perfected, and will soon furnish us stock of, a new series of Card Lenses, extra rapid, peculiarly adapted for babies, and people who will not be quiet. We will give notice of their arrival.

#### WE HAVE NOW IN STOCK

Portrait Lenses, from 1-4 to 15 x 18.

Cabinet Lenses, Nos. 1, 2, and 3.

Card Lenses, Nos. 1, 2, and 3.

Triplets, Nos. 1, 2, 3, 4, 5, 6, and 7.

Symmetricals.

Instantaneous Doublets, all sizes.

Medium Angle Doublets, all sizes.

Large Angle Doublets, all sizes.

Stereographic Lenses, all sizes.

New Universal Lens.

Numerous testimonials pronounce them to be the best, as well as the cheapest Foreign Lenses ever offered to the American Photographer. We will mail price-list on application, and promptly fill all orders.

PART OF THE ROSS CENTENNIAL LENSES ARE STILL UNSOLD.

## Steinheil's Sons'APLANATIC Lenses.

We now have a full stock of these Celebrated Lenses, at the following prices:

No. 1—1-4 size,	. 3½	inch	focus,		. 5	\$25	00	No.	5-10-12	size,		13	inch	focus	, .	\$70	00
2—1-2 "	. 51	"	"			30	00		6-13-16	"		16:	. "	"		110	00
3-4-4 "	. 7	"	"			45	00	I	7-18-22	66						200	00
4-8-10 "	. 101	"	"			60	00		8-20-24	"						350	00
									. ~.		~~~						

Nos. 1 and 2 are in matched pairs for Stereoscopic Work.

We feel sure that at least one of these lenses is needful for the successful prosecution of your business, and so solicit your orders.

Wilson, Hood & Co. SOLE AGENTS FOR 825 Arch St., Philadelphia, Pa.

## PRIZE PHOTOGRAPHS!

One of the objects we hope to attain by offering prizes, is to secure for our patrons the opportunity of possessing themselves of

## Fine Studies in Photography

for their help and guidance. We have succeeded to an unusual degree this time, for not only does the

#### NEW PRIZE SERIES

include work by a variety of artists, but an unusually large variety of subjects, positions, and methods of treatment. Hence the more useful are they as studies.

With but few exceptions the pictures are cabinet size; the rest are promenade size. We offer prints to those who wish to study them, finished in the highest style of photographic printing, at

#### \$3.00 PER DOZEN,

all around. Parties can order in sets, or by the following numbers:

No. 1	to	6,	${\bf from}$	negatives	by.			G. M. Elton.
"	, ,,	12,	"	и.				Bradley & Rulofson
" 18	"	18,	"	"				D. H. Anderson.
" 19	,	24,	"	"				Cook Ely.
" 25	, ,,	30,	u	"				C. W. Motes.
· 31		36,	"	"				C. W. Tallman.
" 37		42,	66	u				J. H. Todd.
" 48	"	48,	"	"				M. T. Baldwin.
" 49	,	54,	44	"				J. H. Beebe.
" 55	,	60,	"	ш				L. M. Roberts.
" 61		66,	"	"			`.	J. H. Lamson.
" 67		72,	"	"				A. Hesler.
" 78	"	78,	"	"			:	Julius Hall.
11 79	,	84,	· · ·	"				R. W. Dawson.

#### ALL OF THESE, GOOD AND BAD, TEACH USEFUL LESSONS.

See Review in this issue of the Philadelphia Photographer.

Address all orders to

EDWARD L. WILSON, Photographic Publisher,
116 North Seventh Street, Philadelphia.

# WAYMOUTH'S VIGNETTE PAPERS.

(DESIGNS COPYRIGHTED.)

of all pictures the with the most artistic

When properly printed. But the clumsy devices generally in use for printing them, or rather for blending the shading about the figure, produce but very few really artistic vignette pictures. Either the shading is too intensely dark, not gradated in tint at all, or it shows an ugly direct, decided line, which is very repulsive. The shading should blend gradually from the dark tint nearest to the figure off into the white background. The results are then soft, artistic, and beautiful. The easiest and best way to secure them is by the use of

#### WAYMOUTH'S VIGNETTE PAPERS.

THEY ARE NOT CLUMSY; DO NOT BREAK; ARE ALWAYS READY; COST BUT LITTLE,
AND ARE EASY OF APPLICATION TO ANY NEGATIVE.

#### They need but one adjustment to print any quantity.

They entirely do away with all the old and troublesome methods, either wood, metal, or cotton.

Eighteen sizes are now made, suiting all dimensions of pictures from a small carte figure to Wholesize, Victorias, Cabinets, &c. They are printed in black for ordinary negatives, yellow bronze for thin negatives, and red bronze for still weaker ones. Directions for use accompany each parcel.

#### PRICES:

In parcels containing or	ne of ea	ch size, N	Vos. 1	to 15, assorted co	olors,			\$1 00
Assorted sizes and color	s, by nu	ambers, p	er pa	ckage of fifteen,				1 00
Nos. 1, 2, 3, 4, and 5, as								
" 6, 7, 11, 12, and 13	"	"	"	Large Cartes and	d Victorias,	by number,	per doz.,	75
" 8, 9, 10, 14, and 15	"	u	"	Cabinets and Wh	ole-size,	"	"	1 00
" 16, 17, and 18,	"	"	"	Half "	"	".	"	1 25

#### (SEE OPPOSITE PAGE.)

When ordering, state the number and color you want.

#### EDWARD L. WILSON, Manufacturer,

116 North Seventh Street, Philadelphia.

S ASK YOUR DEALER FOR THEM.

## WE STILL HAVE

FOR SALE LOW, THE FOLLOWING USED GOODS:

#### Hermagis Lenses.

One Cabinet size, quick, \$90.00.

One Card size, extra quick, \$50.00.

One Card size, quick, \$40.00.

At 331 per cent. discount.

## Printing Frames,

A lot of 5-8, 8-10, 10-12, 13-16, 20-24 Printing Frames, American Optical Co.'s make, very low, in lots. Also, our

## American Optical Co.'s Boxes and Holders.

Imperial Boxes, 8-10, double swing.

Portrait Boxes, 8-10, 10-12 and 14-17.

Venus Boxes, 8-10 and 10-12, double-swing.

View Boxes, stereo., 8-10, 10-12, 14-17, 20-24, double-swing.

As most of our boxes were supplied with two holders, we also have a quantity of single holders for the above boxes for sale cheap.

The lenses were made ESPECIALLY for us and we will GUARANTEE every one of them. Witness our own work done with them.

The apparatus is all in good working order, some of the boxes are but slightly stained, and bear no other evidence of having been used.

All these instruments and apparatus for sale at 25 per cent. discount from manufacturers' regular prices. Better price when a lot is taken.

Sent C. O. D., with permission to examine and try, if partial remittance accompanies order.

#### CENTENNIAL PHOTOGRAPHIC CO.,

Belmont Avenue, International Exhibition, Philadelphia, Pa.





J. LANDY,

CINCINNATI.

## Philadelphia Photographer.

Vol. XV.

#### MARCH, 1878.

No. 171.

Entered according to Act of Congress, in the year 1878,
By EDWARD L. WILSON,
In the office of the Librarian of Congress, at Washington, D. C.

#### PRIZE PRINT HINTS.

NE of the pleasant features of the late competition for prizes was the number of letters which we received from the competitors. These letters were not of the usual kind, but gave us rather more of the inside character of the writers, and their methods of working, than we usually receive in such Without trespassing at all upon the confidence of friends, we take the liberty of making some few extracts from some of the letters mentioned; such as we believe will be useful to the general reader, especially to those who will take advantage of our offer, to purchase at a low price, sets of the pictures for their study. We will lead off by inserting first rather a long extract from the letter of our old friend, Mr. A. Hesler, of Evanston, Illinois, a man as full of instruction as he can be, and from whom we do not hear enough.

"Presuming that I was included in the general invitation to compete for your gold medal, I send you by express the required number of cabinet negatives of a child. In making these, I have not aimed at photographic excellence, as the term is applied by the large majority of its practical workers; my aim is rather to show the possibilities of photography, and what should be the true aim of my co-workers, viz., lifelike expression and natural animation, either in

childhood or more mature life. I hold that if we are ever to merit being called artists, we must earn the name by being able to copy the 'human face divine' in its most pleasing phases and expression. To do this, we must first, within our own minds and expression, feel and reflect that beauty of soul of which every one is possessed in a greater or less degree.

"I see much said about studying the old masters and works of art. All this is well: but how few of our co-workers in this country have access to these. Let me assure all who cannot have these advantages, that they have all around them better models to study than any ever produced by the hand of man. They have the works of the Great Master Artist Himself to study; just what the old masters studied, or they never would have attained to the excellence they did. You have the best kind of models in every face you meet on the street, in church, the lecture- or concert-hall, and (if any of you ever visit such places) the political and beerhall. The best place of all to study faces is in the home and social circle. In all or any of these places, study faces, expression, light and shade. Look for lines of beauty. When sitters come in your studio look them over; put them in the best possible mood; place them in your appointed place to copy with the least possible annoyance; make play of it; and the moment you get the right ex-

pression, light and pose; catch it in the least possible time. I rarely use a headrest, preferring the model to be slightly moved to its being annoyed with it. Where lengthy sittings are necessary, I would strongly recommend the placing of a clock, such as is made by the Scovill Manufacturing Company, with a long hand that travels round the dial once a minute; they are good timers, cost but little, and if put up in some place so the eye of the operator can see it from any part of the room, the annoyance of looking at his watch or counting time in breathless silence is avoided; he can simply cast his eye at the dial, note the location of the second hand, and go on with his amusement or conversation with the sitter. Thus the expression is kept up, and the sitting may be prolonged without the person knowing they are being taken, and you have secured an easy, natural expression, not possible to otherwise obtain.

"The pictures I send are simply copies of joyous childhood, made to reflect the expression of the artist at the moment of exposure of the plate. None of them were exposed over one second. The camera tube used is a one-half Gasc & Charconet, sold by Charles W. Stevens; open stop. The bath: thirtyfive grains of silver to the ounce of water, saturated with iodide of silver, rendered neutral with sal soda, carbonate of soda, washing soda, all the same thing, and sunned and filtered. The collodion: equal parts ether and alcohol; Hance's delicate cream cotton, five grains to the ounce of collodion; iodide of ammonium, four and a half grains; bromide of cadmium, two and a half grains troy. Now the way these are mixed makes all the difference with the rapidity of its working. The following will give you the best collodion for all purposes, and the quickest working that I have ever tried (and I have been through the list). Make plain stock, as above, dissolve your iodides in alcohol in proportion, that one ounce iodized alcohol will be sufficient for ten ounces plain collodion. When you wish to iodize any desired amount, take one ounce of the above, iodize to ten ounces of plain stock collodion, pour the collodion into the iodized alcohol, shake, and use as soon as you like. In hot weather the maximum of sensitiveness will be in from six to twenty days, inclusive; in winter time, one week to three months."—A. HESLER.

Mr. J. H. Beebe, a young photographer of Chicago, who seems to be winning his way there rapidly, says:

"As the time drew near for making the negatives which I promised you to make for competition for the medal, and I began to think seriously about it, I had many misgivings, and regretted I had been so hasty in giving my assent; but I finally made up my mind that if I ever intended to enter into competition with my better equipped rivals, I must begin now. I have therefore prepared these negatives, and which with prints, as demanded by your conditions, are sent by express. As the backgrounds and surroundings are alike, they are simply intended to convey different moods and mental conditions of the sitter. The 'animus,' so to speak, is different in each pose, and I hope will convey the idea intended: 'Idleness,' 'Study,' 'Castle Building,' 'Industry,' 'Meditation,' 'Reverie.' My studio is probably one of the smallest in the country, being about the size of an ordinary reception-room; and I am thus limited in the use of accessories and instruments to such a degree, that competition with larger and fully equipped studios seems impossible. It may be, however, that my work may contain something encouraging to those who have small galleries; and that you may better appreciate my position, let me give you the dimensions. Total length, thirty-two feet; width, twenty feet; inside divided into reception-room, toilet-room, dark-room, and work-room, all of course on a Lilliputian scale; in fact, a trifle larger than a goodsized car. In closing, I may remark that, after a moderate experience, I find that the size of the studio and all of its appointments have little to do with the volume of business. To misquote Shakspeare, I exclaim:

"'The work, the work's the thing

Wherewith to test the tightness of the string Of the good public purse.'

"Asking you to deal gently with my bantling, knowing now the difficulties under which they had their being, I am very sincerely, J. H. Beebe." Mr. C. W. Tallman, Batavia, New York, says: "I see you request a description of light used; also formulæ and kind of lens. I use a north-light skylight, 12 x 14 feet; highest point of light from floor, seventeen feet; lower edge, nine feet from floor, with side-light running down to within three feet of floor, and same width as skylight. The side-light I keep covered with white tissue-paper. My collodion formula was as follows:

"Alcohol, . . . . 16 ounces.

Ether, . . . . . 16 "

Iodide of Ammonium, . . 96 grains.

Iodide of Lithium, . . . 60 "

Bromide of Cadmium, . . . 64 "

Bromide of Potassium, . . . 35 "

"Anthony's snowy cotton, about four and a half grains to the ounce of collodion; or use Anthony's negative cotton No. 1, and Anthony's snowy, half and half. The latter way I prefer. Bath, forty-five grains silver to the ounce, and slightly acid. The developer contained

"Fix with a weak solution of cyanide of potassium. The lens was an extra 4-4. I cannot tell the make, as there is no name inscribed on it. It has been in use a number of years. I suppose it to be a C. C. Harrison. Suffice it to say, I consider it A 1, and \$200 in gold would not buy it.

"If you should desire it at any time, I will send you full and explicit directions for compounding the collodion, for I find there is some little knack in making it."—C. W. TALLMAN.

From Mr. R. W. Dawson, we have the following: "My light and formula are as follows: Top-light, 8 x 12; side-light, one small window, 2 x 4. Lens used was a 4-4 quick worker, made by Richard Walzl, of Baltimore. Time, one minute; cloudy day, between twelve and two o'clock, P.M. I made the six negatives, one after another, just as you see them. I did not have any spoiled negatives. I cleaned the glass first in lye, then in acid, and washed them and albumenized. Collodion, Anthony's new

negative. Forty-grain negative bath. The developer I used was as follows:

"Iron and Ammonia, . . . 20 grains.
Soft Water, . . . 1 ounce.
Loaf Sugar, . . . 8 grains.
Saturated Alum Water, . . . 1/8 ounce.
Acetic Acid, . . . . 1/3 "

"No redevelopment. I fixed with cyanide of potassium. I only retouched out the blemishes. The prints were made on 'Crossswords' paper, silvered on fifty-grain bath, fumed and printed in the sun, washed in soft water (first water, put in acetic acid), and toned in acetate of soda bath as follows:

"I use rain-water for everything but the bath, which is made with distilled water."

—R. W. DAWSON.

Mr. M. T. Baldwin, of Chicago, says, with reference to his pictures: "They were made on a dark, rainy day, as I have not time on bright days, without interfering with my regular business. The bath had been in use for some time without changing, and no extra niceness was observed. I have a direct north light, lower edge about nine feet from floor, at an angle of about thirtyfive degrees; a side-light to within three feet of floor, of course curtained so as to use it as I like. The negatives were made with an extra 4-4 Darlot tube, using the largest stop. My negative-bath I use at about forty grains strong; collodion, alcohol, and ether, equal. To each ounce of above,

"Iodide of Ammonium, . 5 grains.

Bromide of Cadmium, . 3 "

Gun-cotton, . . 4½ "

"Developer, stock solution:

"Water, . . . . 2 quarts.

Iron Sulphate, . . . 3 ounces.

Double Iron Sulphate, . . 2 "

Of the above, . . . 8 "

Acetic Acid, . . . 1 "

"I receive the *Philadelphia Photographer* monthly through Messrs. Thayer & Co., stock-dealers, of this city."—M. T. Baldwin.

Mr. G. M. Elton, who was the successful competitor, has promised us a description of

his studio, and full particulars concerning the production of his negatives, which will appear, we trust, in our next number. Meanwhile we quote the following from his letter, as it will interest those who will receive prints from his negatives before the next issue of our journal.

"In making these negatives, I have studied the background carefully, and I consider that I have lighted my subject according to artistic rules. The young lady is stepping across the drawing-room, and stopping in front of the mantel, is detained by some pleasing fancy. Standing as she does, her figure receives the light chiefly from the window, which must be on this side if the idea of a drawing-room is carried out; assisted, too, by the window at her back. I caught the idea from seeing the subject in her own drawing-room, with the lights similarly arranged. From this idea I had Mr. Seavey paint me this particular background; and so with the accessories; I have endeavored to arrange them in accordance with the thought expressed.

"The costume was chosen on account of its suitability to the thought I strove to express in the picture. These pictures I send you I consider the best by far that you have yet received from me. The negatives were made and retonched by myself, and I spared no pains in getting them up, hoping that they will meet with your approval."—G. M. ELTON.

We are promised further details from several other competitors, which will appear from time to time, or when their pictures appear in our magazine. We hope a great deal of good may be done by this competing set; not only to those who competed, but to those who will have opportunity to study the prints. We strive to make them as low in price as we can, to do them well, and hope they will prove acceptable.

Messrs Gauthier & Villars, of Paris, have just published photographic notes by Mr. P. E. Liesegang, on the divers processes now claiming attention, emulsions, enlargements, carbon photography, etc., with pictures in the text, and a very pretty specimen print obtained without the silver bath.

#### ATTENTION!

BY ROBERT J. CHUTE.

THIS heading is not a military command, but a photographic duty. Attention to business, and attention to everything about the gallery, is one of the most important essentials to success connected with photography. Operators, printers and toners, mounters and finishers, glass-cleaners, and boys of all-work, are necessary, and each has his or her part to perform; but over, above, and through all these there is required a controlling influence that shall keep all in harmony, and secure in the finished work the best possible results.

But this will not be done if each department be left to take care of itself while the proprietor makes himself agreeable to visitors in the reception-room, or goes out to take a glass of wine with a friend. Either he or some capable representative must be a sort of monitor in the gallery, and make daily visits to every part of it. He should inspect the preparation of the glass, and if the boy, or whoever has charge of it, does not understand the most approved methods, then take hold and show him. The theory of a thing may be well understood, but five minutes of practical demonstration are worth more than an hour of theoretical speculation. The hands require to be educated as well as the head, and a man is never thoroughly familiar with a process until he has practiced it with his own hands.

In photography there are so many little things that require attention, or have an important bearing upon the result, that they must be looked after by some person whose interest lies deeper than the mere turning out of a certain amount of work regardless of its quality, or the getting away from the gallery promptly when the clock points to a certain hour. And this attention to details by the head of the house soon begets the same disposition among the subordinates; each feels that the eye of a critic is upon him, and it comes to be his habit to do the very best he knows how. The negative, printing, and finishing departments all require to be visited, and the work inspected in every stage of its progress, and such suggestions or

corrections made as will help the operative, or insure a higher quality of work.

In the printing and finishing there is apt to be a great deal of work passed, only to be rejected by the customer, unless a constant oversight is exercised in those departments. A good printer should never allow a print to go into the toning that is overprinted, or in any way imperfect. When it comes from the frame is the time to condemn it to the waste: but it seems difficult to impress upon the minds of printers the importance of this, and their desire to turn out as many prints as possible, makes it difficult to get as much attention paid to this part of the work as there should be; so it becomes necessary that the prints should be examined before they are trimmed or mounted. Attention to this is the surest check to the accumulation of bad prints, bushels of which may be found in many galleries, with the mounts and labor of finishing a total loss.

In the finishing, the points to be observed are the trimming, which should be neatly done, no rough or torn edges; the figure properly balanced, so as to produce the best effects; fresh, clean paste used in mounting; spots touched out so as not to make a conspicuous black one where there was a white one; and in burnishing to see that the burnisher is not so hot as to blister, and does not scratch the prints. All these things require a little time each day devoted to them, and any photographer in business can make it pay. Even the best of operators may get careless sometimes, if no attention be paid to their work, while a knowledge of a general supervision keeps them on the alert, and constantly striving for the best.

The last thing to which attention is to be paid is the finished work before it is delivered to the customer. It should be inspected, and none but good prints allowed to go out. In this way a man may continually improve the quality of his work, gain the confidence of his patrons, and establish for himself a reputation and permanent business.

Take it regularly.—\$5 will secure it to you for one year—monthly. The Philadelphia Photographer we mean. It will pay "an hundred fold."

### KINDLY WORDS TO CORRESPONDENTS.

Having for many years been a pretty constant reader of the *Philadelphia Photographer*, and feeling a sense of indebtedness to the journal and its correspondents for much of my photographic knowledge, I have often felt that I would like to whisper a quiet, kind word into the ears of some who write for our edification, in order that what they say might be more effectual in its purposes.

I desire to say, firstly, to those who write for us, be sure of your facts.

Every practical photographer who attempts to keep abreast with the times, will of course try pretty much everything new that seems to promise any advantage in the way of improvement.

Every one who has done this will bear me witness, I think, that among the many valuable things learned through this channel, for which I hope we all feel duly grateful, there is much which is a little, yes, a great deal, worse than nothing, thrown off by impulsive, well-meaning correspondents, whose only sin, in this connection at least, is that they did not wait to prove, and in any proper sense test what they publish for facts.

By the time some scores of misled beings have tested and found the utter futility of the claim, it is probable the author of all this trouble has done the same thing, and is heartily ashamed of it.

Gentlemen, "don't do this some more." Again, if I can reach the ears of our friends the correspondents, I would like to say that when you recommend any special formula, to state as exactly as possible wherein this is an improvement over that in general use, so that when we attempt to test it our minds may be led to examine its merits in that special direction. This would save much trouble. For instance, if you are recommending a particular base of salts for sensitizing over all others, why this particular base? If it is developer, and you propose as an improvement the insertion of certain organic or other ingredients beside iron and acid, why so?

A proper statement of the advantages

claimed would very much simplify the labor in testing its advantages.

This reminds me of the reason given for using sulphate of magnesia, or epsom salts, in the developer, by a man who applied to me for a situation as an operator, and did attempt to perform this service for me for a few weeks. He in his judgment had a wonderful developer; he said he always used sulphate of magnesia in it. I asked why he used this; what was its action in the developer? His answer is, I think, original, and worthy of being preserved, and I give it to you that it may be embalmed in the files of the Photographer. Here it is.

"You know," said he, "what action epsom salts have upon the human system?"
"Yes." "Well, it has the same upon the negative; it cleanses it of all impurities."

I then said to him, "You know what action ipecac and tartrate of antimony, or tartar emetic, have upon the human system?" "Yes." "Then why not give it a dose of these?" He did not know, nor do I.

My object is not herein to express any opinion of that developer, but to give his reason (?) for using it. We have too much such reasoning in all departments of knowledge; let it be ostracized from photographic literature once for all.

If this somewhat long communication shall have any effect in provoking a more rigid exactness in statement on the part of our friends the correspondents, our aim will be accomplished.

G. W. Babb.

Boston, January, 1878.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 3.

The Combinations of the Chemicals known as Baths, Collodions, Developers, Emulsions, etc.

THE Sensitizing Bath.—"The following formula may be used for an ordinary negative-bath:

"Recrystallized Nitrate of Silver, 40 grains.

Distilled Water, . . . 1 ounce.

Iodide of Potassium, . . ½ grain.

"Take a quarter of the quantity of water that is to be used, and dissolve the nitrate of silver in it, then add the iodide of potassium

or other alkaline iodide. It will produce an emulsion of iodide of silver, which will be partially redissolved on agitation. Next add the remaining quantity of water. This will cause a reprecipitation of the iodide of silver. Blue litmus-paper should only redden slightly after a minute's immersion. Should the red color be produced immediately, a little carbonate of soda should be added, and the bath acidified with a few drops of a solution of nitric acid (one drop of nitric acid to twelve drops of water). Acetic acid is sometimes recommended for acidifying the bath. If it be used, acetate of silver is formed, which is injurious to sensitiveness and cleanliness of work. Should the test-paper refuse to redden, the nitric acid solution should be added. As a rule, if recrystallized nitrate of silver be used, the bath will require the addition of neither alkali nor acid.

"Some prefer not to add any iodide to the bath, but to allow it to become saturated by work. If a plate be moved about continuously in a bath made minus the iodide, there need be no fear of pinholes.

"In the formula above, distilled water is given; doubtless, if procurable, it is the best to use, but it is by no means absolutely essential. Almost any water can be rendered available by a little attention to chemical considerations. In the first place it should be roughly tested, to see what impurities it contains.

"Add a drop of nitric acid to say one ounce of water; warm, and add a few drops of a solution of sulphocyanide of potassium.

"A red coloration will show the presence of iron sufficient to be injurious in making up a silver-bath. Next add to a fresh portion a little ammonia and oxalate of ammonia; a faint precipitate will show lime present to the extent of about six grains per gallon. This may be neglected. If more than a trace of precipitate be apparent, the water must be purified from the lime. Next boil the water. A precipitate will show that the lime is present as a bicarbonate; if not, it is present as a sulphate. Magnesia is much less common in water than lime, and is present generally as sulphate-epsom salts. Supposing all be present, and it is necessary to render them innocuous, we

must proceed as follows: First, the water must be boiled, to get rid of carbonic acid and to precipitate the carbonate from the bicarbonate of lime. This will leave about two grains per gallon of the carbonate of lime in solution. Next add ammonia till the water is slightly alkaline to test-paper. This will precipitate any iron present (probably present as carbonate), leaving carbonate of ammonia and a little free ammonia in solution. Boil the water again till all the ammonia is expelled. Next add a grain of nitrate of silver to the ounce of water, and place it in a blue or white glass bottle in the sun. This will precipitate the carbonates and chlorides present, and also the organic matter. Next add a few drops of a solution of nitrate of baryta to precipitate the sulphuric acid that may be present in the sulphates, and filter. The water thus purified will make an excellent bath water.

"Rain-water should be passed twice through a charcoal filter to render it fit for use, that is, supposing it has been collected from the roofs of houses. Water collected from snow is generally quite free from every hurtful impurity."—Captain Abney.

Collodions. — Plain Collodion. — "We dissolve two parts of pyroxylin in fifty parts of deodorized alcohol and fifty parts of ether. The alcohol is first poured over the cotton and left to soak it for a few minutes; the ether is added next, and the mixture is now well shaken. This yields a collodion containing two per cent. of cotton. When we desire a collodion containing four per cent., we double the quantity of cotton.

"The cotton itself should react neutral. For testing it, it is placed on fine litmuspaper, and moistened with a drop of water; the cotton is then pressed against the paper. If the paper is reddened, the cotton is acid. Acid cotton should previously be washed in ammonia. One part of ammonia is diluted with four parts of water, the cotton is placed into it for fifteen minutes, the moisture is pressed out, and the cotton is dried by placing it on a metal dish over a pot with boiling water. Powdery cotton, such as falls to pieces when touching it, requires more ether than strong, fibrous cotton, as

otherwise the film will be too tender (rotten).

"For the former kind we should take

"Alcohol, . . . . . 40 parts
Ether, . . . . . . . . . 60 "

In summer or in hot climates the quantity of ether should be lessened, while in winter or in cold climates it should be increased.

- "Plain collodion should be left to settle for at least ten days, when the clear part is decanted. With fibrous, tough pyroxylin the sediment is considerable.
  - "Filtering is not to be recommended.
- "Plain collodion should be kept in a dark, cool place. Shaking it with chemically pure anhydrous carbonate of ammonia should not color it brown within two hours."—Dr. Vogel.

Formulæ for Negative Collodions.—

"Ether and Alcohol, . . equal parts. Iodide of Ammonium, . 5 grains. Bromide of Ammonium, .  $1\frac{1}{4}$  grain. Bromide of Cadmium or Po-

tassium, . . .  $1\frac{1}{4}$  "Cotton, . . .  $4\frac{1}{2}$  to 6 grs.

"This mixture works well in either winter or summer."—J. L. Forbes.

"Mix the ether and alcohol together, dissolve the bromide in a little water, then add the iodide to it and dissolve in the same water. Add this solution to the ether and alcohol. Shake well, filter, and it is ready for the cotton, which I prepare as follows: I weigh the amount required, and place it in a small dish; add about a pint of water and a drachm of strong ammonia, stir it well and let it stand for fifteen or twenty minutes, then wash it in several waters, or until the ammonia is washed out. I then wring it as dry as possible in a crash towel, then pour a little alcohol on it so as to displace the water, and add it to the excited ether and alcohol. Filter as soon as dissolved, and it is ready for use.

"The results of taking the trouble to wash the cotton as above stated, are quickness, a clean, handsomely colored negative, great depth in printing, and still it prints quickly. Any one who will try this method of preparing the cotton will continue to do so. Take cotton with which it is almost impossible to make a negative; prepare as above; it will make a nice negative and work in half the time."—Hugh O'Neil.

"It was in the year 1857, I believe, that I first made use of the iodides of potassium and cadmium in combination, by rubbing them up in a mortar till a pasty mass was formed; I then found them to readily dissolve in alcohol. With this double iodide I used the bromide of cadmium, and although I have made use extensively of other iodides, I have never found any collodion to give such complete satisfaction as this does after it has become ripe. I have for the past few years prepared it with more care, by using the iodides combined in their equivalent proportions, and latterly, I have, in connection with this double iodide, used the double bromides of cadmium and ammonium in the manner to be described—to prepare the double iodide and bromide-which is simple and easy to do, and leaves you with but two salts to weigh out when compounding your collodion.

#### "Potassium-Cadmium Iodide.

- "Potassium Iodide, . . . 332 parts.
  Cadmium Iodide, . . . 366 "
- "Dissolve together in as small a quantity of distilled water as will dissolve them; evaporate by a gentle heat to dryness; stir at the last with a glass rod to-granulate the salts; when quite dry bottle for use.
  - " Ammonium-Cadmium Bromide.
  - "Ammonium Bromide, . 196 parts. Cadmium Bromide, . . 272 "
- "Dissolve and prepare same as the iodide. I now prepare two collodions, one iodized, the other bromized, enabling one to mix the collodions to suit any subject desired.
- "Iodized collodion, made with equal parts ether and alcohol, cotton to suit, and with six grains iodide to the ounce.
- "Bromized collodion, made with five parts ether to three parts alcohol, cotton to suit, and ten grains bromide to the ounce.
- "Mixed in the following proportion, this collodion will be found to meet the wants of both landscape and portrait photography.

- "Two parts iodized to one part bromized; suitable for dry plates, and used wet for interiors and dimly lighted subjects.
- "Three parts iodized to one part bromized; suited for children and quick exposures.
- "Four parts iodized to one part bromized; a generally useful collodion.
- "Five parts iodized to one part bromized; suited for copying and subjects presenting little contrast.
- "The nitrate-bath should be sufficiently acid with nitric acid to immediately change blue litmus-paper, for the collodion has the property of neutralizing the bath. It is better not to use this collodion till it is one to three months old; yet it can be brought into working condition in as many days by the addition of tincture of iodine; but I would recommend those who desire to try it to bottle it up and lay it away in a cool place for a few months, for, like good wine, it improves with age."—John Carbutt, Photographic Mosaics.

#### Collodion for Ferrotypes.—

" Collodion No. 1, per ounce.

#### " Collodion No. 2.

- "Bromide of Potassium, 20 grains.

  Bromide of Cadmium, 30 "
  Iodide of Ammonium, 100 "
  Ether and Alcohol, 10 ozs. each.
  Gunicotton (per ounce), 4½ to 5 grs.
- "Grind the bromides and iodides very fine in a glass mortar, and mix together; then add a little alcohol, stir it well together, let settle, and pour off into a clean bottle, and repeat until it takes up all it will; then add the ether, a little at a time, until the required amount is used, shaking well each time you add it; then filter the whole into a clean bottle.
- "I do not add the cotton to my collodion until I wish to use it. In this way it keeps better, and does not work slower by being old.
- "If your pictures have harsh blacks and whites, a lack of bromide is indicated. When there is too much bromide, the dra-

peries will be flat and light, no shadows, and the whites will be muddy. The remedy in either case is obvious.

"I prefer collodion No. 1, but frequently use Nos. 1 and 2 mixed. Either will work satisfactorily, all other conditions being in harmony."—A. K. P. Trask.

The following general rules may be given for modifying the tendencies of collodion:

"If a decrease of contrast and more detail be required, add bromide.

"If violent contrasts are wanted, the iodides should be increased and the bromides diminished. One-quarter grain of bromide to the ounce of collodion is found to be sufficient to secure cleanness in the shadows, and all but this quantity may be taken away if necessary.

"Cadmium renders collodion glutinous on first iodizing. When kept, it becomes more limpid. Ammonium fits collodion for more immediate use, as it does not cause it to become glutinous, even on first iodiz-

ing.

"When the iodized collodion is of a pale straw color, it is in its most sensitive condition. After it assumes the dark-brown, sherry color, from the liberation of iodine and bromine, it becomes less sensitive, and is more apt to give harsh pictures."—CAPTAIN ABNEY.

Collodio-Chloride, or Porcelain Collodion.

—"Make up four stock solutions:

"A .- Plain Collodion.

"B .- Silver Solution.

"Nitrate of Silver, . . 480 grains.
Distilled Water, . . 1 ounce.

"C .- Calcium Solution.

"Chloride of Calcium, . 128 grains.
Alcohol, . . . 4 ounces.

"D .- Citric Acid Solution.

"Citric Acid, . . . 128 grains.
Alcohol, . . . 4 ounces.

"Label the bottles. Into a ten-ounce collodion bottle carefully decant ten ounces of A. Next add sixty-four drops of B, adding

but two or three drops at a time, shaking well between each addition to prevent the silver from precipitating.

"Now add in the same way four drachms of C, adding two drops at a time. This last addition is the most important of all, for the moment a drop of this is added it will commence to turn milky, and chloride of silver is formed. From this time until the collodion is consumed, the bottle containing it should be exempted from the action of light. Finally, there should be four drachms of D added in the same manner as the calcium.

"In lieu of using the chloride of calcium, either of the chlorides of lithium or of strontium can be substituted. It is questionable whether there will be an appreciable difference in the results.

"Pure chemicals and great care are required in the mixing of the solutions. The preparation is exceedingly sensitive to white light, so that it is absolutely necessary to prosecute its manufacture in thoroughly nonactinic light. When made, it should be kept in a well stoppered bottle, covered with a couple of thicknesses of yellow paper. It should also be stood in a dark closet. If properly combined, the collodion can be used to its last drop."—CHARLES W. HEARN.

Emulsion for Dry Plates .-

"Plain Collodion, . . . . 1 ounce.
Anhydrous Bromide of Cadmium, 7 grains.
Nitrate of Uranium, . . . . 30 "
Nitrate of Silver, . . . . 13 "

"The nitrate of uranium should be pure, and very slightly acidified with nitric acid. The uranium salt and bromide of cadmium should be dissolved in the collodion, and the nitrate of silver added in the usual manner.

"The addition of uranium to an emulsion adds sensitiveness to the plates, and restrains their tendencies to 'fog.'"—Col. Stuart Wortley.

DEVELOPERS.—" Developer, acid, and development is, for wet plates, a solution of sulphate of iron. Conditions of its action are: 1. The presence of a silver solution.

2. A certain proportion of alcohol and acetic acid, in order to facilitate the flow of the developer, and to enter into the film. Thin iodized collodion can stand but a small pro-

portion of iron (two per cent.). Thick iodized collodion requires a strong developer. Strong developers give more details in the shadows (they work softer), while weak developers work hard. The latter are better suited for copying line drawings, etc.

"Formulæ for portrait and landscape work: Five parts of sulphate of iron, or seven parts of sulphate of iron and ammonia; three to four parts of glacial acetic acid; one hundred parts of water;

"Or, ten parts of sulphate of iron, or fourteen parts of sulphate of iron and ammonia; three to five parts of alcohol; two hundred parts of water; two drops of sulphuric acid.

"For drawings: Five parts of sulphate of iron, or seven parts of sulphate of iron and ammonia; three to five parts of alcohol; two hundred parts of water; one drop of sulphuric acid.

"The proportions of alcohol, as well as of acid, should be greater with a bath containing much alcohol than with one freshly made.

"It is very convenient to keep in stock a saturated solution of sulphate of iron, or a solution of one part of iron to five parts of water. This may be diluted in due proportions, and the alcohol and glacial acetic acid added afterwards. Sulphuric acid may be added to the saturated solution at once.

"Ordinary spring-water is suitable for making the developer. (Water which is too hard requires a little more acetic acid.) Ordinary alcohol is sufficiently pure for developing purposes, but it should not contain too much fusil oil."—Dr. H. Vogel.

Compound Developer.—"I have worked this with great success, finding it to be the most intensely working developer I have ever used:

"It requires little or no redeveloping or strengthening, and has the great advantage of allowing you to keep it upon the plate for an indefinite time without the danger of fogging, or producing a frosty appearance in the shadows, often occurring when a negative is pushed with the ordinary developer."—R. J. Chute.

"I mix two solutions, one of Cox's gelatin, ten grains to the ounce of water; the other, fifteen grains of tannin to the ounce of water. Into an ounce of the former, while warm three drops of the latter are put. The gelatin solution is thoroughly shaken, and the precipitate redissolved. This latter compound is then used to add to the developer, one drop of it to the ounce. The addition of this small quantity of organic matter has a remarkable effect, and produces a developer which should be generally used.

"It is very economical, as the same solution can be used over and over again. In cold weather it is important to warm it slightly before using."—H. T. Anthony.

Intensifiers.—The following are formulæ for "density" intensifiers:

#### No. 1.

"Pyrogallie Acid, . . . 2 grains.
Citrie Acid, . . . 2 to 4 "
Water, . . . . 1 ounce.

No. 2.

"Protosulphate of Iron, . 5 grains.
Citric Acid, . . . . . . . . . . 10 "
Water, . . . . . . . 1 ounce.

"No. 3. An ordinary developer, without alcohol.

"Nos. 2 and 3 are usually employed in portraiture, and they are unusually efficacious in bringing out detail.

"No. 1 brings up density more quickly than Nos. 2 and 3, and acts well for a properly exposed picture. Any of the above may be used either before or after fixing. To each a few drops of a ten-grain solution of nitrate of silver should be added immediately before it is applied to the negative.

"The next formula is for changing the metallic silver, after the image is fixed, to iodide of silver.

#### No. 4.

"Mem. Iodine is very sparingly soluble in water; if iodide of potassium be added, complete solution takes place. "After this solution has been applied to the film, any of the following may be used to cause the formation of a non-actinic color.

No. 5. Permanganate of Potash Intensifier (Mr. G. Wharton Simpson's).

"Permanganate of Potash, . 18 grains.
Water, . . . . 1 ounce.

This is most easily applied by immersing the plate in a flat dish till it appears of a yellowish color throughout. The permanganate of potash is decomposed on coming in contact with the iodide of silver, and parts with its oxygen, which combines with the silver; at the same time the insoluble binoxide of manganese is precipitated on the image.

#### No. 6.

"Persulphate of Uranium, . 1 drachm.
Ferridcyanide of Potassium, . 1 "
Chloride of Gold, . . . 1 grain.
Water, . . . . . 20 ounces.

"The color of the deposit by this intensifier is changed to a rich chocolate-brown. The solution should be used in a flat dish.

#### No. 7.

"Hydrochloric Acid, . . 1 drachm.
Saturated Solution of Bichro-

mate of Potash, . .  $1\frac{1}{2}$  "Water, . . . 1 ounce.

"This yields a lemon color, which, after further treatment, gives one more approaching orange.

No. 8.

"Biehloride of Mercury, . 20 grains.
Bichloride of Ammonium, . 20 "
Water, . . . 1 ounce.
No. 9.

"Bichloride of Mercury, . 2 grains.
Water. . . . . 18 ounces.

"Add a solution (ten grains to one ounce of water) of iodide of potassium till the red precipitate formed by its addition is on the point of becoming permanent.

"With Nos. 7 and 8 the following solutions may be used, should sufficient density (as would be the case in copying plans) not be obtained.

#### No. 10.

"Hydrosul	phide	of A	Ammo	nium,	,	1 ounce.
Water,						30 ounces.
Or,		Ī	No. 11			
"Cyanide	e of 1	otas	sium,			5 grains.
Water,						1 ounce.

"Nitrate of silver to be added until a permanent precipitate is obtained. This last solution should stand a night before it is used.

#### , No. 12.

"Ammonia, . . . 1 drachm.
Water, . . . 1 ounce.

"There is but little choice between Nos. 5, 6, and 7; they are mostly suited to land-scape negatives. Nos. 8 and 9 are used with good effect for pictures in which great density is required, or strong contrasts, particularly if followed by No. 10, 11, or 12; in both cases the high-lights will be of a dense black or olive tint. From Nos. 4 to 10, all the solutions should be used after the image has been fixed.

"When the sensitive film has been exposed and developed sufficiently to bring out the details of the image, and there is no tendency for the shadows to be 'fogged' or veiled, and in the case of slightly underexposed pictures, intensification by increase of density should take place before fixing; if there has been overexposure, after fixing.

"With an overexposed picture, before fixing, an intensifier acts like a developer, and would cause fog; in most cases it is wise, before using the intensifier, after fixing, to flood the plate with No. 4.

"In intensifying after fixing, it may happen that the shadows get slightly stained by a deposit of silver. The following will generally prove efficacious in removing such a stain:

"Glacial Acetic Acid, . . 1 ounce.
Water, . . . . . 1 "

(To be continued.)

#### DOLLARS AND CENTS.

No topic in the catalogue is more distasteful to any one connected with artistic accessories than dollars and cents; equally so, none is of more vital importance all admit. We buy our merchandise of our favorite dealer, and, as a matter of course, pay for it. We work long and patiently, day after day, good times and hard times (most of us, I am sorry to have to say, Sunday and all), and have little or no recreation. Daily we hurry from home to gallery at morn, and carry a cold lunch, and nightly

hurry home. Oh, ye of the photographic craft, peril your lives no longer; take warning while yet you can. Monthly you read the obituary of some Grasshoff, Germon, or other well-known and shining light. Would you avoid their early fate? I speak more especially to employers; those who do the brain work, and who stand during business hours behind their desk in crowded, overheated reception-room, and carry home an aching brain and overcrowded memory, and wish Mrs. Jones had brought her baby earlier; and all that I would beg to suggest is, that the experience of thirteen consecutive years has led me to adopt a plan for the preservation of one's self, and here it is if you care to read it.

Take good boys into your employ, and as soon as they can be of sufficient advantage, into your confidence; keep them year after year; encourage them to elevate themselves to good and better society and surroundings every year; help them to become useful members of society; and presto! you will find you can have an hour at home in the morning for your gardening, divert your mind by making a few plain walnut frames, or a chicken-coop, a cart for the baby, a croquet ground, or play a game with the family; and, also, you can leave your gallery earlier at night, take outdoor air, neutralize the tired feeling, and when morning custom begins, be ready to go through the day in a manner creditable to yourself and profitable to your patrons, thus gaining substantially in matter of dollars and cents.

Shut your doors Saturday night, and remember the Sabbath day should be kept unbroken; Monday morning you will be at your post, and feel refreshed, invigorated, and thoroughly rested, and be able to produce, by very little effort, fine results, again being gainer by dollars and cents.

Can your customers find time to go on picnics or other excursions on week-days? So can they also find time on week-days to have photographs taken. If at business, let them bring down their dress coat in the morning, and run in at noon, step into your private dressing-room (of course you have one), and presto! you soon let them go back to their work. Most certainly we should collect (from strangers especially) in

advance. These are only a few of the channels through which should flow to us a steady stream of dollars and cents.

J. P. SPOONER, Stockton, Cal.

#### A CHAPTER OF DODGES.

HAVE you ever used the white of an egg to mount photographs with? I think it is the nicest thing I ever used; no lumps or dirt get on the back of the picture, and it sticks fast and tight. I just take the white of an egg and put it in a cup; while the picture is damp, take a brush and brush on the egg just as you would do starch. I think "J. H. S." is right with regard to the price of old negatives.

If I was going to put in a light in a room the size that "C." wants, I would put the side-light within two feet of the floor, and have the side- and skylight both of the same width, namely, eleven feet each, the skylight a little more than half pitch, and put the light in the middle of the room, so that I could work from both ends of the room.—R. W. DAWSON.

EVER since I have taken the *Philadelphia Photographer*, from time to time there have appeared in its columns articles pretending to be "sure cure" for blisters, all of which I have tried, and they have proven failures with me. I have a receipt I am using with perfect success, having no failures, and it also improves the tone of the print. It is not a cure for blisters, but a preventive. Warm water, or ice cold, single or double paper, may be used, and blisters will not appear.

I am using a fixing solution for prints, after the formula of Hearn, a saturated solution of hypo, one ounce to eight of water, to which I add half an ounce of acetic acid No. 8; of course, larger quantities will need acetic acid in proportion. This bath I make up just before I commence to wash my prints, and by the time I am through toning it is ready for use, and is of a milky cast. The precipitate I suppose to be sulphur, and can be filtered out, but I use it without. I think an improvement would be to add the right quantity of acid to the saturated solution of hypo, and filter out the

precipitate of sulphur, thus having it always ready for use. To your valuable magazine I give this article, and to those of your patrons who are troubled with blisters it will be worth more than a year's subscription; and those who do use it, I would like them to send me a cabinet (or larger) specimen of their work, that I may know how much good I have done to the craft by writing this article.—John F. Singhi, Rockland, Me.

Mr. RICHTER, of Munich, recommends his toning-bath, composed as follows:

A.—Chloride of Gold, . 1 gramme.
Water, . . . 1000 grammes.

B.—Acetate of Soda, . 15 grammes.
Water. . . . 500 "

Mix A and B, add four drops of a saturated solution of sulphate of copper, and let it stand several days. The toning is only performed until the half-tones grow bluish. If the whole picture has still the red appearance, it will change in the fixing-bath, which should not be too strong—about 1:10. The whites will be especially nice.

Mounting.—In mounting pictures, it is known that the bristol-board always gets concave or wrinkled. To prevent this, the mounted picture must be put between two rows of nails, fastened in a board at a distance one-fourth or one-fifth narrower than the width of the mount. The print must be outside. When the dry picture is taken out, it will be perfectly straight.

LIESEGANG'S MAGIC LANTERN TO BE USED AS AN ENLARGING APPARATUS.-If the front part of the lantern, composed of the condenser, the lens, and the diapositive, is taken off and fastened in a proper manner to a window-frame, and its lens connected with a camera, one will get an enlarging apparatus which is perfect in every respect. Mr. H. Norden describes his arrangement as follows: On a window-frame is fastened a board with a hole to receive the apparatus. The condenser of the latter has to be outside. and facing south. In front of the same has to be a ground-glass in order to disperse the rays. The camera is mounted on a tripod. In front of it is attached a sort of funnel of pasteboard, which covers the lens. After the camera and lens are thus connected, and

tightened by means of some cotton, the viewing of the diapositive can be performed in the usual manner. According to Mr. Norden, the arrangement is more perfect than any, as he has made a life-size picture through a stop the size of a pin-head in only two minutes. No indistinctness was to be noticed.

FOR RETOUCHERS.—I inclose a sample of a retouching pencil that I claim the very best extant. No brittleness, no point coming off when you least expect it, and making a spot upon the negative as though it was ink instead of lead-pencil touch. For softness, hardness, nicety in touch, and elasticity, I fully recommend to all retouchers to give Dixon's American Graphite S. M. a trial, and I think they will say, as I have, Eureka! Sioux Brubaker, a fine retoucher, tried one of these pencils recently for the first time, and said, "those are my pencils for the future."—J. Paul Martin.

INCLOSED is a photograph of a chair made

and used by us for making vignettes, which we find very handy to support the shoulders of the sitter, especially where there is a bustle. If you think it worth while to notice in your journal, you are at lib-



erty to do so .-- Hopkins & Sanders.

#### TRIMMING AND MOUNTING.

ON page 103 of Mosaics Mr. Irving Saunders gives us an interesting article on "Trimming and Mounting," and promised to send us a cut of the device he used for holding the guides for using the Robinson trimmer. Now since we have received the photograph promised, we reprint his useful article from Mosaics, and add therewith the cut, that it may be made plain to all of our readers. We are sure that the hint will be valuable to many, since the great trouble in using the Robinson guides of the large sizes,

is to keep them down flat. One sometimes feels the need of another hand. One cannot quite resort to the method adopted by the great musician, who, in order to reach the eleventh key, used his nose. It would be dangerous to the trimmer if the photographer attempted any such joke as that.

#### TRIMMING AND MOUNTING.

"It seems strange to me that photographers will not use advantages that are placed within their reach. I suppose this is either from carelessness in finding out the utility of various things, or that they are patented, and so many photographers seem to think no patent should exist in connection with photography.

"The man who spends his time in the field of invention has just as good a right to re-



ceive pay for the same if he produces anything of worth as one who labors in any other direction. I have for a long time used Robinson's trimmer for trimming all my prints, cards, stereos, cabinets, and 4-4 sizes. Various forms can be used for cards and stereos; I prefer arch-top and slightly rounded corners at the bottom. The effect is very tasty, and when pictures are well mounted it covers a multitude of other failures. Pictures, however good, when badly mounted are like a well-dressed man wearing a hat which is badly out of style; the whole effect is spoiled.

"But the main object of this article is to tell the manner of using the trimmer, which is half the battle. Take two pieces of wood formed in the shape of the letter T. Hinge the lower end to the table with a spring underneath to raise the top end of the T. the middle attach a rope, and pass it through the table, with stirrup in which to place the foot. To use, adjust the form on the print, then bring the top end of T down on the form with the foot, holding the end towards you with the left hand, proceed to trim. No gallery should be without these trimmers. A want of them is most painfully seen in the stereoscopic pictures made by those whose business does not require a more expensive machine.

"Much has been said about the use of Slee's prepared mounts. I have used them for a long time, all the sizes mentioned before. Take the print from the water, place on the card, then pass through a new clotheswringer; an old one will not answer because the rolls are not straight; care must be taken to have the pressure about right. For stereos it is excellent, because the prints slide easily to their places, and all that is necessary to hold them is to pass between the rolls. Those who will try these methods of trimming and mounting will not go back to the older methods I am sure."

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 44.)

As for the naming of acids, those that contain no oxygen (sometimes called hydrogen acids) have their names formed from the name of the element united with the hydrogen, with the termination ic and the prefix hydro; as HCl, hydro-chlor-ic acid; HBr, hydro-brom-ic acid, etc. The hydro in these names might be misconstrued as meaning water, so it has been proposed (and is used to some extent) to reverse the names, thus hydrochloric would become chlorhydric, etc.

The names of acids containing both oxygen and hydrogen are formed from the name of the element united with these; if there be but one acid, then its name is formed by adding ic to the name of the element united

with oxygen and hydrogen, changing it slightly for the sake of the sound, perhaps; while if there are two acids, the name of the one that contains the less amount of oxygen will end in ous; of the one that contains the greater amount, in ic. Thus, sulphurous acid (H<sub>2</sub>SO<sub>3</sub>) contains less oxygen than sulphuric acid (H2SO4). But, suppose two such acids had been found and named with ous and ic terminations, and then another acid should be discovered containing less oxygen than the ous acid (sulphurous acid, for instance), prefixes would have to be made use of, and in this case it would be hypo (hyposulphurous acid); if it contained more oxygen than the ic acid, the prefix would be per. Thus, from their names, we know that, 1, hypochlorous acid (HClO) has less oxygen than No. 2; 2, chlorous acid (HClO<sub>2</sub>) has less oxygen than No. 3; 3, chloric acid (HClO<sub>2</sub>) has more oxygen than No. 2; 4, perchloric acid (HClO4) has more oxygen than No. 3. If there ever should be an acid found that had more oxygen than No. 2, and less than No. 3, it would be called hypochloric acid.

There is another method of naming acids, which regards them as *salts* of hydrogen, which will be spoken of under the head of salts.

The name of a salt consists of the name of the metal of which it is formed and a modification of the name of the acid. The acids ending in ic and with prefix hydro, drop the prefix and change the ic to ide. Hydrochloric acid forms a chloride, hydrobromic a bromide, etc. Hydrochloric acid with sodium forms what is known as sodic chloride, sodium chloride, or chloride of sodium.

The acids having names terminating in ous change the ous to ite. Nitrous acid forms nitrite, hyposulphurous acid a hyposulphite, etc. Acids ending in ic form ate. Nitric acid forms nitrates. The similarity of these three terminations, ide, ite, and ate, are often very confusing to some, and their difference should be distinctly marked. If an example is given, the facts may be more easily remembered. Let us then take sodium (Na) and hydrosulphuric acid (H<sub>2</sub>S), commonly known as sulphuretted hydrogen; these would form sulphide of sodium (Na<sub>2</sub>S); again, sodium and sulphurous acid (H<sub>2</sub>SO<sub>3</sub>)

would form sulphite of sodium (Na<sub>2</sub>SO<sub>3</sub>), while sodium and sulphuric acid (H<sub>2</sub>SO<sub>4</sub>) would form sulphate of sodium (Na<sub>2</sub>SO<sub>4</sub>). The sulphite contains no oxygen. The sulphite contains less oxygen than the sulphate.

Let us take sulphuric acid and sulphate of sodium (H<sub>2</sub>SO<sub>4</sub> and Na<sub>2</sub>SO<sub>4</sub>): comparing their formulæ, we see the only difference is that in the one there is H2, in the other there is Na2; so we might say the sodium replaces the hydrogen of sulphuric acid (just as has been said before that the silver replaced the hydrogen in water to form oxide of silver); but like with the silver, suppose all the sodium does not replace all the hydrogen; suppose only half does; then we shall have HNaSO4. This is what is called an acid sulphate, because there still remains some of the acid (sulphuric), as we shall see if we take 2HNaSO4, which, as is plain, is composed of H2SO4 and Na2SO4. It is also called a bisulphate, because there is twice as much sulphuric acid in HNaSO4, in proportion to the sodium, as there is in Na, SO, (the latter is called the neutral salt).

Probably the most uniform and consistent style of naming is the following. It is unfortunate that it is not in general use, and when we think of the firm hold present and long accustomed method of speech and manner has upon every one, and with what difficulty changes are made in such manner, it may be said that it will be a long, long time before this style of naming will be introduced completely. This method consists in making the name of the basic element come first either in the form of an adjective, as has been previously referred to, or not. Thus, for chloride of potassium (KCl), we would say potassic chloride or potassium chloride; for sulphate of potassium (K<sub>2</sub>SO<sub>4</sub>), dipotassic sulphate (dipotassic, because there are two atoms of the potassium to the molecule of the compound), or dipotassium sulphate. The acids are regarded as salts of hydrogen. chloric acid (HCl) would be called hydric chloride or hydrogen chloride; sulphuric acid (H,SO,), dihydric sulphate or dihydrogen sulphate; the acid or bisulphate of potassium (HKSO4) would be hydric potassium sulphate, etc. By this most effective

method, as long as one remembered the name of a compound he would remember its formula, and as long as he remembered its formula he would remember its name.

Let us turn our attention to another property of the elements. Let us take a number of compounds containing hydrogen, and arrange them with regard to the number of atoms of H. Thus we would have: 1. HCl, HBr, HI; 2. H<sub>2</sub>O, H<sub>2</sub>S, H<sub>2</sub>Se; 3. NH<sub>3</sub>, PH<sub>3</sub>, AsH<sub>3</sub>; 4. SeH<sub>4</sub>, CH<sub>4</sub>. Here we notice that the substances in each class vary from the others in the power they have of combining with hydrogen.

The power that substances have of combining with each other is called atomicity or quantivalence or valence. For measuring the power, they are generally referred to hydrogen. Thus, the atom of a substance that will combine with one atom of hydrogen is said to have an atomicity, quantivalence, or valence of one; or it is said to be monatomic or univalent, while it is often called a monad. Those of the second class that have a power of uniting with two atoms of hydrogen, are called diatomic or bivalent; also called diads. Those that can unite with three, are triatomic or trivalent; also called triads. Those that can unite with four of hydrogen, are tetratomic or quadrivalent; also called tetrads; and those that can unite with five, are pentatomic or quinquivalent; also called pentads, etc. But this theory of valence, while being very useful, is by no means perfect; there are some inexplicable variations from it. These variations give rise to various modifications of the theory, which we will not inquire into. Indeed, it is immaterial to us whether the theory be a true or false one, so long as it serves a good purpose, and this it will do as long as we remember one or two things.

Although it is not necessary to compare the atom of any element with hydrogen, it must be compared with some other monad, for this reason: It is often customary in chemistry to represent the valence of an atom by lines radiating from its symbol; for example, the monad hydrogen, by H—, the diad oxygen, by —O—, the tetrad silicon, by —Si—, etc., always using as many lines as the numerical valence of the element. These then may be combined thus:

 $H_2O$  would be H-O-H, or  $\frac{H-}{H-}O$ , in which it will be seen that hydrogen has only one line, because monatomic; and oxygen two, because diatomic.\* To repeat, then, an element must always be compared with a monad; for example, take sulphur, there is a compound  $H_2S$ , that is  $H_-S$ ; sulphur is therefore a diad; but, if we had not compared sulphur with a monad, but with some diad, such as oxygen, we might have been led wofully astray, for we would have taken the compound SO<sub>3</sub>, and oxygen being a diad, we would have concluded that sulphur was a hexad, which would in all probability have been wrong, for the compound  $SO_3$  is  $S_{-0}^{-0}$ O, when we see that it is bivalent, while its apparent hexivalency is due to the power of the oxygen to combine with itself, a property possessed not only by oxygen, but by all the elements.

There are, as has been remarked before, two compounds of hydrogen, H<sub>2</sub>O<sub>2</sub> and H<sub>2</sub>O; if we take the first of these, we will have oxygen monivalent, but if we take the second, we will make it obivalent. Here is a perplexity, surely, but it may be overcome by taking oxygen at its highest valence and calling it bivalent; it would then be said that H2O2 was not a saturated compound, because oxygen being a diad, two atoms can combine with four atoms of hydrogen; but, as it combines in this compound with only two, it has not got all that it can hold (it could take two more), that is, it is not completely saturated with hydrogen; not soaked through and through with it, if you will pardon the expression. It is in this manner that the terms "saturated" and "unsaturated" are obtained. A saturated solution is one that holds all it can of the solid; an unsaturated one is the opposite. An unsaturated compound is unstable; it will not long continue in the state that it is. H<sub>2</sub>O<sub>2</sub> is unstable; it gives off one of its atoms of oxygen (showing that there is nothing to hold it there), and thus forms water. This

<sup>\*</sup> It must not be supposed for an instant that a formula written thus attempts to show the actual position of the atoms in a molecule; it is only used for convenience, and for more easily and clearly understanding the subject.

unstability of a compound is a great proof of its being unsaturated, so that in this case there is no doubt that H2O2 is unsaturated, and that oxygen is a diad. Some substances exhibit this double valence, and have a double series of salts on account of it; for instance, take mercury; it shows itself as a monad and a diad; so that of chlorides we have a chloride HgCl, when Hg is monivalent, and HgCl2 when it is bivalent, and so on for its other salts. The difference in this is often indicated by the name. The first in this case would be mercurous chloride; the second, mercuric chloride; the ous always signifying the metal in its lower valence, the ic in its higher.

Valence must not be confused with chemical affinity, for the two are entirely different. Affinity refers to the force attracting two atoms to each other. If we take hydrogen and chlorine, we find the attraction between them very, very great, and they are both univalent; but, between carbon and chlorine, the attraction is of the weakest, yet carbon may hold four atoms of chlorine; thus, the atom of the substance that attracts chlorine very strongly, can hold but one atom of it. The attraction is strong, the valence weak, while the substance that has but little attraction for it may hold four atoms of it; the attraction weak, the valence strong. Dividing all the elements according to the valence, as perfectly as our present knowiedge will permit, we would have them in the following order:

- 1. Univalent.—Hydrogen, chlorine, bromine, iodine, fluorine, potassium, sodium, cæsium, rubidium, lithium, silver.
- 2. Bivalent.—Oxygen, sulphur, selenium, tellurium, barium, strontium, calcium, magnesium, zinc, cadmium, copper, mercury, yttrium, erbium, cerium, lanthanum, didymium.
- 3. Trivalent.—Boron, bismuth, gold, indium.
- 4. Bi- and Trivalent.—Nickel, cobalt, iron, manganese, chromium, aluminum, uranium.
- 5. Bi- and Quadrivalent.—Carbon, tin, lead, platinum, iridium, palladium, osmium, rhodium, ruthenium.
- 6. Quadrivalent.—Silicon, titanium, zirconium, thorium.

(To be continued.)

#### FRENCH CORRESPONDENCE.

February Meeting of the Photographic Society of France—Presentation of Heliochromic Proofs—Remarks on Process—Presentation of Photo-chromic Proofs, by Mons. Leon Vidal—A New Large-grained Albumenized Paper for Pencil Coloration of Proofs—A New System to Obtain Line Engravings in Black upon White Paper (at present a trade secret)—How to Obtain Line Engravings, etc., in Blue Lines upon White Paper; Formula, etc.—A new Lamp for the Enlargement of Opaque Objects—On the Great Discovery of the Century—An Easy Method of Treating Photographic Residues.

THE Photographic Society of France held their monthly meeting on Friday evening last, the 1st of February. A communication was read from Mons. Ducos du Hauron on his heliochromic process. It may be well to inform my readers that this gentleman has been for many years studying the means to procure color in the camera. That he has turned the difficulty by exposing three times the object to be reproduced, and that with differently colored glasses interposed between it and the sensitized plates. His theory is that nature is composed of three principal colors—red, blue, and yellow. In order to reproduce the red color which the landscape or picture contains, he fixes a green glass in his lens; for the blue he employs an orange-tinted glass; and for the yellow he uses a violet-colored glass. When the three negatives are perfect they are printed upon three colored pellicles, and the three monochromes thus produced are superimposed one above the other, and a polychromic picture is the result.

My readers will say this is not a colored picture produced in the camera; the three monochromes are tinted with colors purchased at the druggist's, or at a painter's shop. All this is true, still we can but stimulate Mons. Ducos du Hauron to new exertions. If, peradventure, something new turns up in his experiments to render his process rapid, it will be a boon to commerce; until that rapidity be found, his process will only be looked upon as a dodge to procure a colored picture, and set aside as

such; for what photographer in the world would attempt to reproduce a picture for which he must make three negatives, and under certain conditions not only such as making them through colored glass, but in developing each of them in a certain manner, not to speak of the difficulty of superimposing the three monochromes when obtained? Last year no one uninitiated in the photo-polychromic art would have set any value upon the pictures produced by this process; and although a great progress has been made by the inventor, as the proofs presented last Friday could testify, I still imagine that such a person would still prefer a chromo-lithographic picture.

Mons. Leon Vidal also presented the Society with some photo-chromic proofs, with their printed historical description, being a part of his collection of the Louvre. Now here are two gentlemen in presence as the inventors of photo-chromy. The first pretends that his process is "more scientific," and produces very little. The second is more modest, and employs nearly a hundred workmen in his establishment, and produces very much. Therefore it is very natural that we should compare the two processes, and ask what would be the price of three hundred copies of a picture by the first, and how much by the second, and the time required to deliver such an order? By the first, at the present state of the process, it would take several months, and the price would be exhorbitant. By the second it would take three or four days, and would not cost, I believe, much more than an ordinary photographic proof. Space prevents me giving a long description of the specimens sent by Mons. Leon Vidal. They were very beautiful, and fulfilled their object, viz., to spread artistic knowledge and taste into the most remote corners of France.

The newly established firm of Potot & Giroud presented the Society with a new large-grained albumenized paper, upon which, said the inventors, it is easy to obtain, by means of polychromic pencils, beautiful colored portraits, "genré pastel," without previous knowledge of painting, providing the person possesses a little taste with a natural sentiment of color.

The same gentlemen presented to the

Society a great number of proofs of line engravings, obtained also upon a new paper without the aid of a photographic negative. All that is required is to wash the paper in cold water; a proof is immediately obtained; black lines upon white paper constituting a great progress over the ferro-prussiate papers. The inventors promised to give a public demonstration at the next meeting.

The same evening, strange coincidence, Mons. Pellet presented a new process which could give blue lines upon white paper, which rendered the process very valuable for the reproduction of drawings for engineers, architects, etc. The sensitizing solution is composed as follows:

This solution can be modified according to the sensibility required. The oxalic acid can be replaced by any of the other vegetable acids. If the paper has not been sufficiently pasted, gelatin, gum, isinglass, or dextrin can be added to thicken the solution. When dry, the paper preserves its sensibility very well, which sensibility is very great. In order to reproduce a map, a sheet of sensitized paper is placed under the map, and if in summer and in the sun, fifteen to thirty seconds is sufficient to decompose all the parts not protected by the black lines. By the action of the light the salt of iron is reduced into protoxide. This salt is not acted upon as the former, by a solution of yellow prussiate of potash, therefore those parts protected by the black lines turn blue. After exposure the paper is plunged into a bath of prussiate (fifteen to eighteen per cent.), and immediately the design appears in blue. The paper is then rinsed in cold water and plunged into a bath of chlorhydric acid (eight per cent.) in order to dissolve out what may remain of the protoxide and whiten the paper; the proof is then washed and left to dry. The experimental demonstration which Mons. Pellet gave before the Society obtained a great success. I remember quite well having seen, during my visit to England, a similar result obtained by Mr. Willis, Sr., although I do not remember by what process.

Mons. Darlot, the well-known optician, presented a new lens for portraiture, a new feature in it being that the two lenses can be separated more or less, according to the will of the operator, which is extremely useful, says the inventor, in portraits where a standing or sitting position is required. The proofs exhibited were very good; the lines were sharp, and a great depth was obtained.

The last presentation was that of a lamp for the projection of opaque objects. It was not a very important instrument, and therefore unworthy of a larger space here.

Savants here are all on the qui vive, for at the end of 1877 was accomplished one of the greatest scientific operations of the century, viz., the transformation into a liquid of a gas or gases which had resisted all the efforts of chemists; and a most remarkable thing was, the discovery was made almost simultaneously at Geneva and at Paris.

On the 22d of January the following telegram arrived at Paris, from Mr. Raoul Pictet: "Oxygen liquefied under the enormous pressure of three hundred and twenty atmospheres, and one hundred and forty degrees of cold." On the 24th, two days after, a sealed envelope was opened before the Academie des Sciences, which letter had been deposited during three weeks in the hands of Mons. Dumas. The letter contained a communication from Mons. Cailletet, an iron manufacturer at Châtillon-sur-Seine, in which he described the process and his experiments in presence of some members of the "Institute," by which he had succeeded in transforming into liquid state, oxygen, oxide of carbon, azote, and hydrogen. I will endeavor to give a short description of the process he employs.

It is well known that if the air be rapidly compressed a great heat will be disengaged. The contrary takes place by the rapid expansion of the air, cold is generated. Mons. Cailletet borrowed this last property for the liquefication of gases. He takes a long, solid glass tube, like that of a barometer, only much larger and longer; this is filled with the gas to be experimented upon, and then placed upon a mercury-bath. A hydraulic pump is set to work, the mercury is propelled into the bore of the tube, and thus

the air is compressed into the four hundredth part of its primitive volume. A stop-cock is now rapidly opened, and the mercury rushes out, and the gas expanding so rapidly, creates such an intense cold that it condenses and runs down the tube in a liquid state. What the future may do for this discovery of human genius is not and cannot be imagined; but a great victory has been obtained thus for this invention by modern science, which teaches that matter does not subdivide itself in solids, liquids, and gases, but exists indifferently in the three states, the same as the water which we hear warbling over the stony bed of our rivulets is transformed into ice by cold, or into vapor by heat.

The greater part of photographers' residues are in the form of chloride of silver; and if photographers would give themselves a little trouble, the expense, and above all the loss occasioned by sending their residues to the refiners, would be saved, and the gain would amply repay a little extra care in their treatment. I propose, therefore, that all the residues be put dry into a large bottle, and a certain quantity of ordinary ammonia be poured upon them, and well shaken up every now and then. The ammonia will dissolve all the chloride. When the ammonia is saturated, decant it, and even filter it, and set it apart. Pour fresh ammonia upon the residues until all the chloride is dissolved out. It can easily be seen if the ammonia contains chloride, by the following test: Take a test-tube, pour a few drops into it, then a little distilled water; pour into it a few drops of hydrochloric acid, and a heavy precipitate will be the result if it contains chloride of When all the chloride has been dissolved out, put the ammonia into a largemouthed jar, containing plates of sheet-copper. In a very short time the chloride will be reduced to a metallic state. It is then put into a crucible and melted. It can now be converted into nitrate of silver, which will be very pure, and give excellent results. As to the residues, which the ammonia has no action upon, it is well to send them to the refiners, or sell them.

Prof. E. Stebbing. 27 Rue des Appenins, Paris, Feb. 5th, 1878.

### NEGATIVE RETOUCHING MADE EASY.

BY H. C. NORMAN.

AM indebted to Mr. Charles E. Emerson, who was formerly with Anderson, of Richmond, Va., for the following receipt:

Copal Varnish, . . . 1 ounce. Spirits of Turpentine, . . . 1 "

"Pay tribute unto whom tribute is due" is my motto. Suffice it to say, I have all the credit I desire by giving it to the subscribers of your valuable journal, believing that all who will give it a fair trial will exclaim Eureka! Some may cry Buzine!

After a practical trial of eleven months, I can with safety give it to my brother photographers as a preparation that will in no manner injure the negative, as it can be applied to any negative that has been varnished with ordinary alcohol varnish. Apply with the ball of the little finger on right hand only enough to cover parts to be worked on, using no more than is absolutely necessary. When it becomes tacky, rub the parts treated with a piece of soft cotton goods; the twill side of Canton flannel is what I use. You will now find that you have a surface upon which the operator can work with ease. Use Faber's pencils from H to HHHHH for small heads; for large negatives, use Faber's Nos. 2 and 3. In case you get it on too heavy, it is easily removed with a point made from soft wood, dipped in spirits of turpentine. It is useless for me to say that upon the negative treated with the above preparation the retoucher will find no trouble in obtaining the desired effect, even on the most transparent parts of contact or solar negatives, leaving no opaque spots. Suffice it to say, a fair trial will convince the most incredulous.

#### A DENSE FOG.

BY E. A. KUSEL.

I HAVE read Mr. C. W. White's communication in the last number of the magazine with a good deal of interest. My impression is, that Mr. White has got his bath in a condition, which, to coin a word, is "over-hyposulphized," and the best thing he can do with it is either to reduce it to solid

silver, or sell it as waste. A few years ago, I purchased the traps of a defunct photographer, who had several bottles filled with nitrate and toning-baths. One day, by a mistake, which very frequently happened to him, he mixed a part of the hyposulphite with the negative-bath, and lo! he was going to make a negative. When he developed his plate, however, he found himself in a "dense fog," and no picture; nothing but fog. He acidified his bath and tried again; all fog once more. He then sunned it, and fog obscured even all the effects of the sun. Now he evaporated it until he destroyed two evaporating dishes. The damage was followed by fog; thereupon he added more water, silver, and I know not what else, still the fog arose as though to hide all his misdoings. Notwithstanding all his scientific manipulation, and after one month of hard work had passed by, he gave it up, both bath and photography at the same time, with the verdict: "died" from the effect of too much mixing. This bath I bought from him; I kept it in the sun for over ten months, and at the end of that time I found it full of long needle-shaped crystals. I drained off the non-crystallized mass with a siphon, and the bath worked clear but very slow; nothing would restore it to its pristine condition. thereupon evaporated it, and reduced it to metallic silver, and thus ended the fog.

You may publish this if you like, for the benefit of those who mix hypo with the nitrate bath.

#### SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.—The regular monthly meeting was held Thursday evening, February 7th, 1878, the President, Mr. Ellerslie Wallace, Jr., in the chair. The minutes of the last meeting were read and approved.

Mr. Hewitt, on behalf of the Committee on Exhibition, reported that a lantern exhibition was held at the Franklin Institute on the 23d, ult., in accordance with the resolution of the Society.

Messrs. Frank Bacon and C. M. Gilbert were duly elected to membership.

The proposed change in by-laws, making-

the meetings of the Society semi-monthly, was taken up and passed.

It was decided to hold the regular meetings of the Society on the first and third Thursdays of each month.

Two very interesting relics of the earliest period of photography were presented to the Society; one a daguerreotype, made by Dr. Goddard in 1846 or 1847, presented by Mr. Vaux; the other, a daguerreotype of still earlier date, given by Mr. Browne. This was made by Mr. Cornelius, who was experimenting with Dr. Goddard at that time. The thanks of the Society were tendered to Messrs. Vaux and Browne for their donation.

Mr. Browne made some remarks on gelatin-bromide emulsion, and said he had lately seen some exquisite results by this process, made with very short exposures.

A member spoke of the difficulty of working these very sensitive emulsions, on account of the dim light it was necessary to use in their preparation and development; but the general opinion seemed to be that there was much less danger of failure from this cause than was generally supposed.

Adjourned. D. Anson Partridge.

ANSON I ARTRIDGE.

Secretary.

[Translated for the Philadelphia Photographer.]

## PHOTOGRAPHIC SERVICE OF THE PORTUGUESE GOVERNMENT.

BY J. RODRIGUES.

WET collodion process for the reproduction of printed matter, pen drawings, etc.; divers formulæ.

### PREPARATION OF PHOTOGRAPHIC GUN-

Sulphuric Acid at 66°, . 500 gram. (16 oz. Troy) Nitric Acid, density, 1,4, 250 " (8 oz. Troy.) Cotton, very dry, previ-

ously washed in a highly diluted solu-

#### Collodion

That can be used, if so desired, for reproductions with half-tones:

Alcohol at 40° Cartier

(95 per ct.), . . . 500 c.c. (17 fl. oz.)
Ether at 65°, . . . 500 c.c. (17 fl. oz.)
Gun-cotton, . . . 11 gram. (170 grains.)
Iodide of Cadmium, . 6 " ( 92 " )
Iodide of Ammonium, . 5 " ( 77 " )
Bromide of Ammonium, . 2 " ( 31 " )

#### DEVELOPER.

A. Distilled Water, . 1 litre (34 fl. oz.) Crystallizable Acet-

ic Acid, . . . 20 gram. (308 grains.)

B. Pyrogallic Acid, . 100 " (3\frac{1}{2} \text{ozs. Troy})

Alcohol at 98 per. ct., sufficient to make up a

#### LIQUID USED:

A. One litre, . . . . (34 fl. oz.)
B. 50 c.c., . . . . (13 fl. drachms.)

#### FIXING SOLUTION.

Saturated solution of hyposulphite of soda (highly alkaline reaction by means of the addition of a few drops of ammonia). It should rest several days before using.

#### VARNISH FOR NEGATIVES,

Very hard and very resisting to heat, applied warm:

Varnish for negatives made with highly soluble gun-cotton in alcohol (collodion with two-thirds of alcohol):

Alcohol at 90 per ct., . 6 litres (203 fl. oz.)

Gum Elemi, . . 80 gram. (2% oz. Troy.)

Gum Benzoin, . . 240 " (8 " )

Gum Lac, yellow, . 240 " (8 " )

Gum Lac, white, . 120 " (4 " )

Turpentine, . . 160 " (5 " )

Positive Negatives for Helio-engraving made directly by the Designer.

This process, which is of great simplicity, can, in a great number of cases, do away with photographic negatives. As described, it will enable any designer, even with few appliances at his command, to obtain a good engraving.

Upon a ground-glass, the surface of which has been lightly rubbed with a piece of cotton cloth and powdered sandarac, and from which afterward all excess of the resin has been carefully removed, the drawing which is to be engraved is to be traced with a pen suitable for this purpose. For this work is used india-ink mixed with water, to which has been added a small quantity of sugar and glycerin. These ingredients prevent the complete drying of the ink, leaving it slightly wet and viscous. If, when in this state, we throw on the drawing, as dry as possible, plumbago in very fine powder, which is caused to adhere to the ink by means of light rubbings made with a tuft of cotton, the drawing will become so black as to be completely opaque, and in the contrasts will compare favorably with the most successful negative.

In order that the drawing thus transformed should be protected from dampness

and have a certain consistency, it will be sufficient to protect it by means of a photographic varnish which, whilst preventing any injury, will give to the plate greater transparency, and thus render much more easy the execution of the work yet to be done.

The negative thus prepared is placed on a copper plate coated with bichromatized gelatin, or bitumen from Judea, and exposed to the light. The engraving may now be made by one of the methods indicated in this communication.

We may add, as a piece of useful information, that the positive cliché, thus made, may be easily transformed into a negative, by means of the processes used for this sort of transformation.—Moniteur.

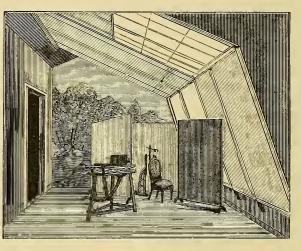
#### OUR PICTURE.

W<sup>E</sup> present our readers this month with the first of the pictures sent in competition for our prize of the gold medal, for the best six negatives sent us by January 25th, from negatives by Mr. J. Landy, of Cincinnati, Ohio. Mr. Landy, to his credit be it said, was the first who responded to our call, and his negatives were so technically good in every respect, we felt sure of

their acceptance by the jury, and immediately began to print them for our illustration. For this reason they are done, and appear before the subject for which the award was made.

The name of the lady who kindly sat for Mr. Landy, is Miss Jeffreys Lewis, of the Broadway Theatre Company, New York. Of the six negatives, some represent Tragedy, some Comedy, and others ordinary positions; all of first-class excellence in very many respects, and wholly up to Mr. Landy's best work.

Mr. Landy has frequently before enabled us to present our readers with specimens from his negatives, and in August, 1871, his celebrated picture, "Last of the Queues,"



was published, and created quite a good deal of excitement among photographers. At that time we published his formula, and a cut of his skylight, and as a good many photographers have entered the art since then, we reprint from the article alluded to the following, describing Mr. Landy's skylight:

"The drawing annexed is of the interior of Mr. Landy's skylight, and the screens and accessories are shown in their position relatively as used. The dimensions of this studio are as follows:-length 40 feet, width 25 feet, top and side-light, each 12 feet wide. The side-light reaches to within two feet, six inches of the floor, and stands at an angle of about 25 degrees, and is 10 feet high. The top-light is 20 feet long, and inclined at an

angle of 40 degrees, as shown in the cut. A very good model, no doubt.

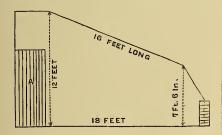
'In speaking of his formula, Mr. Landy says: 'The formula I work is the same as you have so often published, and which I have used for thirteen years or more.

#### Collodion.

'Powers & Weightman's	Ether,	1	ounce.
Alcohol, 95 per cent., .		1	"
Iodide of Ammonium,		5	grains.
Bromide of Potassium,		2	**
Anthony's Cotton		4	66

"'I also have a solution with the above proportion of iodide and bromide, without cotton, for thinning in hot weather. I also have a strongly iodized solution for certain kinds of work. My bath is generally from 35 to 45 grains strong. Strong effects of light require very weak iodizing; formulæ are played out; after making a few batches of collodion, you will soon see what's wanting. I believe in cultivating the eye so that you can tell when you have a good effect, without trying a plate to see if the shade is too deep, or the light too strong. Brains!"

In addition to this, Mr. Landy says in a recent letter: "I find I have nothing new to offer you, therefore deem it useless to repeat what you have published before; since you have the drawing of my skylight and my formula, all of which are about the same as you have printed from time to time. The only change I have made is my light, which is now much lower, and I consider it a great improvement. The dimensions are as follows: 12 feet wide, with the balance the same as diagram shown; and with the aid of curtains I manage to obtain very satisfactory effects of light and shade. I have a



space provided at the end of my room, as you will observe in the second diagram, which is used to store backgrounds. Each background is supplied with a pair of trunk wheels to enable me to run them in grooves, and a large number can be stored away in a very small space, and with one pair of Seavey's background attachments, is all that is required for any number of backgrounds. Such an arrangement as this, of course, makes it necessary to have a much wider room than usual, but its convenience is undoubtedly very great."

We congratulate Mr. Landy on being able to secure such admirable effects as this in his light. He gives us no information as to the kind of lenses he used. The prints were made at our own printingrooms, on S. & M. Dresden paper, double brilliant, sold by Mr. G. Gennert, N. Y., whose advertisement is found in our current number. In our next number we hope to give the picture for which the award was made, from negatives by Mr. G. M. Elton.

#### FRENCH ITEMS.

T a late meeting of the French Photographic Society, Mr. Carette placed before the members some samples of tchaoma. This new product, destined to take the place of gum in the retouching of negatives, has not, it appears, any of the objectionable features of this last. Not being hygrometric, it does not ferment, and it dissolves with the greatest rapidity. It may be spread over the negative immediately after washing, or when the negative is dry. This is of very great advantage, as it often happens that for some reason, the negative is not gummed immediately after washing, and this operation is impossible when the print is dry, even partially. The price of the tcha-oma does not exceed that of gum (twenty-five cents for a quart of liquid), and being very easily used, will prove useful. It may be sent by mail without difficulty.

WE learn from our correspondent, Dr. Adolf Ott, that the new magazine, Light, is edited by Mr. Ferdinand Braun and himself. We hope for this new candidate a goodly share of photographic favor, and if pushed with the usual spirited principle of the house which publishes it, it will have a large success.

Dr. Ott, in the same letter alluded to above, says that "the carbon tissue of the Autotype Company," to which Mr. E. Z. Webster referred in our November issue, "undoubtedly contains anilin, or some other fugitive color of organic origin, hence it is no wonder that the pictures fade. Our house, A. Braun & Co., have made it a point from the beginning of our manufacturing, not to introduce any other but perfectly stable pigments into our tissues, such as sienna, indigo, Prussian blue, etc.; these pigments constitute a tissue which will remain permanent in tint. With reference to the other fault which Mr. Webster mentions, the cracking of the film, we have never experienced any difficulty."

Mr. J. Levy, our esteemed friend in Paris, has recently been making a collection of photographs from the gallery of antiques at the Louvre. He has, with such quality of light as was at his command, made excellent reproductions of these works of art in that great national museum, which together make a very valuable collection. He has also made some very fine pictures of the beautiful paintings in the new opera house, including the artistic splendors of the famous staircase, of the public foyer, of the foyer in the ball-room, and of all the rich decorations in this wondrous building, including many of the fine studies in architectural design and sculpture. We already have fine lantern slides of many of these subjects.

M. Boivin, the distinguished French photographer, recommends electricity as a method of removing photographic films. We all know how extremely the collodion film is charged with electricity, and we are quite willing to believe that M. Boivin has started a method which will make platecleaning easy. He tells us that if we first cut with a knife around the edges of the film, and then charge the film first with positive and then with negative electricity, or vice versa, the collodion film will leave the glass without further trouble. Based upon the well-known fact, that the two kinds of electricity are so antagonistic, this seems a very reasonable suggestion and can be easily tried.

M. WARNERKE, the ingenious inventor of tissue and roller dark-slides, already fa-

miliar to our readers, has been honored by the Royal Photographic Society of Belgium, with a gold medal worth 500 francs or \$100, for the best dry-collodion process.

Two of the French fathers of photography, Becquerel and Regnault, are deceased. Both of these gentlemen were among the early photographic experimentalists, and have held their interest in our beautiful art ever since, adding much to photographic discovery and instruction, and much towards their growth. It is quite a coincidence that two such old disciples of the art should be taken away so closely together.

Photography at the Paris Exhibition.—We understand that, contrary to the usual custom, the commissioners of the Paris Exhibition will not concede the exclusive right to make photographs within the limits of the Exhibition to any photographer, but keep the matter wholly in their own hands, with the intention to hire operators and appropriate the profits themselves. Our experience is that if they undertake this, they will have enough to do without any further occupation, and we wish them joy.

#### METRIC EQUIVALENTS.

OUR patrons are aware of the fact, that we have done what little we could to induce them to use the new metric system. Not only have we issued a table giving metrical equivalents, which could be tacked up in the dark-room, but through our friend Mr. H. A. Pintard, we last year, on page 133 of Mosaics, published a very elaborate article on the metric system, which can be referred to at any time. We now take up the metric question, at the request of the American Metrical Bureau, 32 Hawley Street, Boston, in order to help on further in this good work. We do this most heartily, since we can see the great advantage which it would be to photographers to adopt this system. We add extracts from some of the publications of the "Metrical Bureau," with illustrations of the use of the new measures, to help on still further with the work. It will be noticed that in our translation of French articles, we add the metrical tables, with a translation to our system;

but we hope some day to step from under with our own system, and will do so as soon as photographers are able to walk alone by metrical measure.

Metric Equivalents.—1 inch equals 0.254 metre, or about  $2\frac{1}{2}$  centimetres.

1 foot equals 0.3048 metre, or about 30 centimetres.

1 yard equals 0.9144 metre, or about  $\frac{10}{11}$ ths of a metre.

1 mile equals 1609. of a metre, or about  $1\frac{6}{10}$  kilometres.

1 U. S. liquid quart equals 0.946 litre, or rather less than 1 litre.

1 U. S. dry quart equals 1.101 litre, or rather more than 1 litre.

1 U. S. gallon equals 3.785 litre, or about  $3\frac{8}{10}$  litres.

1 U. S. bushel equals 35.24 litre, or about 4ths of a hectolitre.

1 avoirdupois ounce equals 0.02835 kilogramme, or rather less than 30 grammes.

1 Troy and apothecaries' ounce equals 0.03110 kilogramme, or rather more than 30 grammes.

1 avoirdupois pound equals 0.45359 kilogramme, or about  $\frac{5}{11}$ ths of a kilo.

1 long ton (2240 pounds) equals 1016.05 kilogrammes, or about 1 metric ton.

International Measures, the entire system in a single sentence.—Measure all lengths in metres, all capacities in litres, all weights in grammes, using decimal fractions only, and saying deci for tenth, centi for hundredth, milli for thousandth, deka for ten, hekto for hundred, kilo for thousand, and myria for ten thousand.

This sentence comprises the entire system, for surfaces and bulks are simply the squares and cubes of the measure of length, and the "ar" and "ster" are only other names for the square dekametre of land, and the cubic metre of firewood.

The metre (measure) is one ten-millionth of the distance from the equator to the pole, and equals the distance from the tip of the fingers to the centre of the opposite breast. Four steps equal three metres. The width of the hand is a decimetre; and of the fingers, two centimetres. The litre (capacity) is simply the cube of a decimeter (tenth measure) in the more convenient cylindrical form; and the gramme (weight) is simply

the weight of a cubic centimetre (hundredth measure of water.)

Meaning.	Spelling	ciation.	Illustration.	viat'n.
length	metre	$\mathbf{meeter}$	like gas metr	e m.
capacity	litre	leeter	as in pique	l.
weight	gramme	gram	" dram	g.
tenth	deci	desi	like decimal	d.
hundreth	centi	senti	" cent	c.
thousandth	milli	mili	" mill	m.
ten	deka	deka	" decalogu	e D.
hundred	$_{ m hekto}$	hekto	" hecatom	b H.
thousand	kilo	kilo	" chiliad	K.
ten thousan	d myria	miria	" myriad	м.

To these ten are sometimes added surface ar ar area a solidity ster ster stereoscope s.

The names metre, litre, and gramme are from Greek words, understood in all modern languages to mean a measure (as a gas-metre, water-metre, etc.), a capacity, and a weight. As the metric system is now used by most nations and will soon be universal, the names understood by all nations are used, instead of measure, capacity, and weight, which would be understood only by the English. For the same reason the fractions are not called tenth, hundredth, and thousandth in English, but by their Latin names deci, centi, and milli. The large quantities, instead of ten, hundred, and thousand, are called deka, hekto, and kilo, the Greek words for these numbers. These words are short, avoid all danger of confusion, are understood by all nations throughout the world, and so are very much to be preferred. We therefore say, not hundredth measure, but centimetre; not one thousand grammes, but kilogramme, etc.

Each prefix is an independent word, accented on the first syllable, and retains this accent in the compound, cen'timetre, not centim'etre, etc. The abbreviation for the compound is simply the letters for the two parts, dm. for decimetre, Dm. (with capital) for dekametre. For shorter names of the compounds, pronounce only the prefix and the first letter of the unit, saying centim, millim, decil, hektog, etc. This system will be understood best by remembering that our money is really a part of the metric system. The dollar is value, as the metre is length, the litre is capacity, and as the gramme is weight. A dekadollar we call an eagle, a decidollar a

dime, and the centidollar and millidollar are shortened to cent and mill. Both the money and metric system correspond perfectly to our arithmetic.

There are no tables or scales, or compli-With the metre, every cated relations. possible dimension (length, surface, or solidity) can be measured; with the litre, every possible capacity; with the gramme, every possible weight. The single sentence above takes the place of compound or denominate numbers in our arithmetics; and as a result large committees of our ablest teachers report that a full year may be saved in the school-life of every child. The gain in commerce is much larger, for a single multiplication or division gives an absolutely accurate result, where the common system requires several operations to get often only an approximate answer.

The metric system, by which so much is accomplished, has now been adopted by twenty-eight different nations, including a majority of the civilized world. In eleven countries it is in exclusive use; and in several, like Germany and France, there are penalties for using any other measures.

This system is being now rapidly introduced into the United States, and within a few years will take the place of the present complicated tables, as dollars and cents have driven out the pounds, shillings, and pence.

The educational society incorporated to secure this result desires the coöperation of every friend of economy and education, and will gladly send full information to applicants.

Address "American Metric Bureau, Boston."

Illustrations of the Use of the New Measures.—To show that the single sentence above is sufficient for all possible measurements, a few illustrations are given, and with them hints of the most convenient ways of writing and reading metric quantities. It will be seen that, having a metre stick and the sentence above, an intelligent man can make for himself a litre and gramme, and then in the international measures, now used by nearly thirty countries, can measure anything.

A piece of cloth is  $5\frac{1}{4}$  times the length of the metre stick. Write it  $5^{m}25$ , and read

it 5 metre twenty-five. The rule says measure in metres, using decimals, and call hundredths centi. Nothing but decimals are used, for only decimals are marked on the measures. There is no more difficulty, if one prefers it, in using common fractions, than in our currency, where halves and quarters are common, and even eighths are used. 25 was found on the stick itself, which is divided exactly like the dollar, into a hundred centimetres, called centim, like our cents. There is no occasion to read it 5 metres and 25 centimetres, any more than to add the word cents to the sum \$5.25, which is commonly abbreviated to 5 dollars 25. As in the money we seldom use eagles and dimes, so certain metric denominations are seldom used, and no more confusion or loss of symmetry results than in our saying 55 cents, instead of 5 dimes and 5 cents.

The abbreviation of the unit, here m., takes the place of the decimal point, which may be omitted without danger. The number of figures determines the fraction or denomination.

A chain is 7 and 25-1000 metres long. Write 7m025. Read 7 metres, naught, twenty-five.

A timber is 123-1000 of a mm. thick. Write it 123mm. Read it 123 millimetres (or millim). Or it may be written .m123. In this case use the decimal point, or write 0m123 to avoid any chance of reading it metres 123, which might be understood as 123 metres.

For very small units, the millim is the more convenient term to use, as we use the thirty-second of an inch, or better, the decimals of a foot or inch. For distances less than a metre, the centimetre or hundredth is used. For long distances, where the number of metres would be large, the 1000 metre, or kilometre, is used. Decim, dekam, and hektom, are seldom used.

A sheet of glass is 2-1000 of a metre thick. Write it 2mm. or .m002. The distance between two cities is 48,593 metres. Write 48Km 593. Read 47 kilometres (or kilom.) 593.

In weight, the thousand gramme (kilogramme, almost always called kilo) is the common term. Hay, coal, shipping, etc., are weighed by the thousand kilo, which is

a ton. The kilo is used in common business where we use the pound. Druggists use the gramme, and for powerful medicines, poisons, etc., the decig., centig., and millig., or milligramme are used. An elephant might weigh 6000 thousand grammes, or six thousand kilos, for we are to "measure all weights in grammes, calling thousand kilo." A mosquito might weigh 1-1000 of a gramme or a milligramme, for we are to call thousandths milli. The gramme being the weight of a cubic centimetre, the kilo is that of a cubic decimetre, and the ton is the weight of a cubic metre of water.

The "g" is seldom added to the abbreviation for kilogramme.

In measuring surfaces or solidities, it should be remembered that they are the squares and cubes of the measures of length, and therefore the scale of ten is squared and cubed, and it takes 100 sq. cm. to make a sq. dm., and 1000 cu. cm. (or cc.) to make a cu. dm. Therefore, in surfaces, two places, and in solidities three places, belong to each denomination. 46sq.m.8459 means 84 sq. dm. and 59 sq. cm.; not 8 sq. dm., 4 sq. cm., 5 sq. m., etc.

This is nothing peculiar to the metric system, but is the simple arithmetical law, which is sometimes forgotten. Metric quantities being simply tangible arithmetic, serve to make the law more clear. It is simply the law of squares and cubes, puzzled over in involution and evolution. If the metric square-measure frame or cube-root blocks are looked over for a few minutes, this matter will always be understood.

In capacity, the litre is more used than any of its multiples or divisions. It is almost exactly our quart. For small measures, decil. and centil. are used. For very small quantities, the druggists and chemists have the habit of saying cubic centimetre or cc., which is simply naming the quantity in linear units, instead of calling it a millilitre.

The litre might be called a cubic decimetre, only it is too long a name. In fact, all the capacity and weight names are only abbreviations for the original length or metre names, and were it not for the longer expression, we should have nothing to learn but the "metre." The kilolitre would be a cu. m.; the hektolitre would be one hundred

cu. dm., etc. The gramme would be "weight of cc. of water;" the kilo would be, "weight of a cu. dm. of water;" the ton "weight of a cu. m. of water," etc. So the metric system is properly named, for it is simply knowing the one thing, the metre or measure by which everything may be measured.

For information concerning the great advantages that will attend the introduction of the Metric System, address the General Office of the Society, 32 Hawley Street, Boston.

#### PHOTOGRAPHIC NEWS.

THE question as to whether deep printing is an aid to permanency or not, is being discussed somewhat abroad. It has often been said by old printers, that the old method of hypo toning was more permanent than the present popular system of toning with gold. The opinion is, however, that the fact of such prints lasting longer is due more to the depth of the printing than the character of the toning-bath, and that light prints are the most liable to fade. Of course to obtain such good and lasting prints, full of detail and half-tone, the proper sort of negatives must be made. The technicalities of negative-making have been entirely changed with the last few years, since the retouching of them has been the order of the

The Photographisches Wochenblatt, in speaking of the frequency with which portraits are rejected-not on account of any technical failure in manipulation on the part of the operator, but because the portraits were not considered to be likenesses-thinks that photographers might do a little themselves to remove a frightful cause of disputes by pointing out to their customers a frequent cause of failure, namely, that the unlikeness of portraits is generally the result of sitters not wearing their ordinary clothes, but coming more "dressed" than usual. This, besides giving an unfamiliar impression, helps to deepen the self-conscious and unnatural expression of countenance so often assumed by sitters in front of the camera. The Wochenblatt thinks that women are almost exclusively the offenders on this point. That may be left an open quetion, but that this

matter of dress is a large factor in the failures in likenesses there can be no doubt. Of course the remark is not new, but it is one of those truisms which are often lost sight of, and which will bear repetition.

THE working of the German law of copyright is illustrated by the following story, taken from the Archiv, which gives an account of the first prosecution under the new act of the 10th of January, 1876. the beginning of last year, Herr Hanfstängl, 69 Unter der Linden, Berlin, took a portrait of the Princess Charlotte of Prussia, of which he printed and published great numbers. The defendant did the same, but furnished his prints at a tenth part of the price charged by the former, whereupon Herr Hanfstängl brought the present action for violation of his copyright. The defendant pleaded that, by the seventy-eighth section of the Copyright Act, the copyright of a portrait was vested in the sitter, unless any special agreement to the contrary had been made, and that, as Herr Hanfstängl had not obtained any formal authorization to publish the portrait, he was incapacitated from bringing the action, as the copyright belonged to the Princess, and she alone could prosecute for its infringement. The judges took this last view of the case, and pronounced judgment accordingly; but Herr Hanfstängl appealed, and produced a document dated the 1st of October, executed by the Princess's ober-governante, granting him the exclusive right of publishing the Princess Charlotte's portrait. The date was, however, long after the time when the complaint was made, and could not be held to have a retrospective action, besides which the judges thought it questionable whether the authorization, to be valid, should not have been obtained from the Crown Prince. They therefore gave judgment in favor of the defendant.

In the Archiv, Herr Neidhart relates how he made a pleasant-looking picture of a portrait, the plate of which was broken off short across the neck. He chose a white mat with a small oval opening coming pretty close around the head; but then too much of the white ground showed, so he added just outside the oval line a garland or arabesque, of

large or heather twigs. The effect of the garland was so good that he prepared a number of other mats decorated with twigs of ivy, oak, pine, juniper, or with tufts of ferns, garlands of hops or of vine leaves, interspersed with corn flowers, lily of the valley, and blue bells. Herr Neidhart's idea is not, however, so new as he, being an amateur, seems to imagine; for, not to mention the mats in which flowers and ferns in splash work are introduced, there are now many mats and albums ornamented by pictures of flowers in their natural colors, though the taste of this style of ornamentation is questionable. Ten or twelve years ago, an attempt was made to introduce mats having several small ovals for carte portraits, the spaces between being filled up with chromos, in colors, of groups of birds, fruits, insects, etc.; but the attempt did not meet with much success. Herr Neidhart, however, does not mention whether the flowers composing his garlands were natural or photographs, or etchings, or chromos, so it would not be fair to attack him as suggesting the admixture of a photograph monochrome with the brilliant hues of flowers.

The Deutchen Photographen Zeitung intends to bring out a photographic directory, in which the name and address of every photographer conducting business on his own account in Germany, German Austria, and Switzerland shall be found. The directory will also give the names of photolithographers, lichtdruck printers, and manufacturers and dealers in photographic goods. The publication, if well got up, is likely to supply a much felt want.

THE education of photographers is exciting considerable interest in London, and correspondents are suggesting the establishment of an institution, where time and every facility may be given for teaching and learning everything requisite to know in the art; where the pioneers may educate the newcomers, and where gentlemen specially qualified to instruct and teach, may be useful in giving a genuine school of photography a helping hand. We trust the project may be met with more encouragement than a similar one was here. It will be remembered that during last year, we suggested the establishment of a similar school in this coun-

try, and at that time had offers from a well-known corporation to give the thing a considerable lift, provided enough interest was taken in the subject to warrant it. Sad be it to say, however, that to our recollection, not a single response to the offer was made by the photographers of America, with the exception of those to whom we specially wrote about it.

The following method is used by the Berlin Institute for Photography, for removing negative films from the glass, a process necessary in working the lichtdruck method: Before collodionizing, the plate must be covered with a weak solution of caoutchouc. After fixing and washing, the negative must be somewhat warmed by hot water, and then a solution of gelatin, about ten per cent., is poured on it, carefully avoiding the formation of air-bubbles. When that gelatin film is dry (the negative must be dried in a horizontal position), the negative will be retouched as usual, and then the borders being cut with a knife, the pellicle will be easily drawn off.

PHOTOGRAPHIC HALL.—There still seems to be a lack of information on the subject of subscriptions made to Photographic Hall during 1876. We therefore again inform subscribers of the fact, that by addressing the Centennial Board of Finance, 308 and 310 Walnut Street, Philadelphia, they may obtain a dividend on their shares of stock, amounting to fifteen per cent. with interest.

SWAN'S patents, for the manufacture of carbon tissue, etc., expired during last month, and have not been extended, we learn.

They are discussing the decay of stereoscopic photography in England. At first sight we would think the cause was the want of good stereoscopes, like our own American "scope" in England, but when we realize that a prominent house in New York is selling stereoscopic pictures at \$2.50 per hundred, and that the very best Niagara views can be had at retail for \$6.50 per gross, we begin to feel that there is some other reason. Certainly, this is the fact in our own country, where we have good 'scopes, but the scope of buyers is not very wide at present. The abomination of copying our best stereoscopic views is creating some distaste for them, and

in a measure killing the trade. It is to be deplored.

Lantern-slide traffic is in the height of its glory, and has been very brilliant this season. Each year lantern exhibitions seem to grow more and more in popular favor, in every part of our country.

In the *Photographische Zeitung*, Herr Von Brauck recommends the following for long exposures. Dissolve in a bottle and shake

 Distilled Water,
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Pour the filtered solution over the freshly silvered plate just as it comes out of the bath. Move the plate about as when coated with collodion, until the greasy marks disappear. Do not use too strong a developer. With plates so prepared, one may expose a long time without getting dry spots.

THE Mittheilungen mentions amongst other applications for German patents, that of Dr. Liesegang for a peculiar form of camera, and that of Herr Strumpen, of Hamburg, for a process for burning lichtdruck pictures upon glass and porcelain, etc. Herr Schüler, of Berlin, has obtained a patent for a method of producing a photographic film upon glass capable of being ground by the sand blast.

M. Scotellari contributes an interesting article to the News on artistic lighting, in which he says: "Operators place the model generally too near the background, and dispose of the curtains on both sides of the model. This is a great error. The model lighted only in front, receives evidently the light in plain face, and thence follows the absence of modelling in the picture, abrupt transitions of the lighted parts to the slightly lighted or non-illuminated ones; that is to say, they have black shadows and chalky lights without relief, and in place of being well modelled the print becomes, of course, white and flat. Such imperfections I want to rectify by popularizing the method called Rembrandt, which will produce results diametrically opposite to those obtained previously, in giving living portraits with fine relief, depth of shadows, gradations of tint,

and the transparent fineness of rendering of the flesh.

"The Studio.—All studios should be furnished with movable curtains to use for regulating the light according to the operator's will, and to distribute it in the following mannner: The upper glazed side, giving the top-light, should be divided into two parts, the shadow and the light side. A dark violet curtain covers the first, a bright violet curtain the second side. The curtains will allow the operator to light or shade, at pleasure, the model, in case the light should be not active enough, or too active.

"The glazed side of the studio, where the full light enters, must be furnished with a movable bright violet curtain, which can be advanced or retired if wanted. There should only be employed gray carpets of a brighter or deeper color, to avoid reflections which could alter the operation of the light.

"The background should be in preference of a deeper color, by putting at the side where the model is chiefly lighted, part of a background screen, so that it projects a penumbra or slight shadow, which grades off and terminates near the middle of the background of the picture, and causes an effect equal to a circular background.

"In case, by any reason, the fixing or the furnishing with curtains in the studio be inconvenient, there can be placed as a substitute above the model a violet screen (or a violet sunshade) to shade the model according to the effect desired."

"Although the depths of winter are upon us now, and it is not so easy to operate with satisfaction as it is when the weather is more moderate, still it will not be many weeks before the leaves appear, and photographers will find it incumbent upon themselves to execute their orders for outdoor work. This should warn them that now is the time to look up and get ready their apparatus. Our catalogue offers the very best assortment of landscape lenses and boxes possible to secure, and any one wishing to make good work, should first consult this catalogue before purchasing." So say the Scovill Manufacturing Company, New York.

Our English cotemporaries seem to have considered the various letters from our cor-

respondents on the state of business worthy of republication in their magazines, nearly all of them having been reprinted in both English journals. It is pleasant to know that the interests of the two nations are so closely identified, and that what affects one seems to affect the other, more or less. We hope, however, that our friends over the water have not had so continued a dull season as we have had here.

For a quarter of a century at least, the photographers in and around Philadelphia have never had so remarkable a season of sunshine to help them in their holiday work, as they had during the month of December. There were but very few days when the sun did not shine brightly and warmly, an occurrence almost unprecedented, giving the ability to print in time nearly all of their Christmas orders. Moreover, the flow of business was very good, and but few had any cause to complain, and those few were such as whose work did not deserve patronage. In some sections of our country we learn, however, that the weather was not so favorable, and that many of the holiday orders are still unfilled.

THE "Identiscope" is a recent invention by Mr. William Mathews, of Bristol, England, some of the uses of which may be learned from the following communication.

Engraving with Electricity.—The applications of electricity seem to be unlimited. We are informed that an ingenious inventor has succeeded, after many tedious trials, in constructing a machine for engraving by means of electricity. The design is placed under one, and the plate to be engraved under the other pole of the battery, the latter being supplied with the engraving tool. When the battery is set in action, an ivory button moves horizontally over the design, and since the latter is made a conductor, thereby closes the circuit and affects the metal under the other pole, producing a fac simile on the plate. If it be desired to produce a relief plate, it is only necessary to reverse the poles of the battery, and the functions performed on the design and plate will be reversed likewise.—Papier Ztg.

### Editor's Table.

PICTURES RECEIVED.—From Mr. E. D. ORMS-BY, formerly of Chicago, and now of Oakland, California, some admirable cabinet pictures of little children, in various pretty attitudes, which prove Mr. Ormsby to be fully able to maintain even a better quality of work than he produced in Chicago. We do not see what can be sweeter than his pictures of the little ones which he sends.

From Mr. C. D. Mosher, 125 State Street, Chicago, a number of cabinets, of ladies, which prove the new light of Mr. Mosher to be fully equal to the old, if not better. Mr. Mosher's pictures are mounted on his new registered mounts, which give them a very distinguished and pretty appearance.

From Mr. G. M. Bretts, Pottsville, Pa., a number of interesting pictures of children, in fancy and other positions, and with fancy backgrounds.

From Mr. Frank Jewell, Scranton, Pa., some pictures of snow scenes, in which he is eminently successful. Mr. Jewell is one of the progressive photographers who never permits his work to fall back in quality.

From Mr. J. P. VAIL, Geneva, New York, an admirable cabinet picture of Prof. J. TOWLER, our former esteemed correspondent of that city. The Professor looks quite as young as he did ten years ago, and the picture is the best we ever saw of him. We hope to look as handsome and as genial and pleasant as this when we are twice as old as we are now.

From Mr. J. S. Young, Rome, Georgia, some very nice specimens of his work. We are glad to see such good things come from Mr. Young, and hope he will continue to progress.

From Mr. R. N. DAWSON, Blair, Nebraska, a fine view of the town in which he lives, which shows good work; and also some portraits, which prove him to be quite up to the new ideas of his art.

From Mr. J. H. Hamilton, Sioux City, Iowa, some very interesting stereoscopic views of Indian chiefs, camps, burial-grounds, etc., together with a sample photograph, made in winter, from one of his emulsion plates. The latter was made with the Ross doublet, in ninety seconds, on a cloudy day, which is quite rapid for emulsion work. The shadows are clean and transparent, and yet the whites are not overdone.

The beautiful stereoscopic pictures to which

we alluded in a late number, as having been received without any name, were from Mr. IRVING SAUNDERS, Alfred Centre, New York. He tells us in the current number how he uses the Robinson trimmer for cutting out prints.

From Mr. N. R. Worden, New Britain, Connecticut, we received quite a parcel of cabinet pictures, of ladies, gentlemen and children, in different attitudes, which show Mr. Worden to be quite a skilful photographer. He seems to have excellent ideas in the direction of getting characteristic pictures of his sitters, a matter which is often overlooked by photographers who do otherwise excellent work.

NEWS.—Mr. W. W. WASHBURNE, of New Orleans, Louisiana, has nearly a whole column of the New Orleans Commercial, of a recent issue, devoted to a notice of his gallery. Mr. Washburne has had an experience in photography of thirty-five years, and of course his studio and operating-room are fitted up with the best instruments known to the profession, and with every accommodation for making excellent work. Every attention is paid to the decoration of the reception-rooms and studio; and, in fact, all through is evidence of good business thrift, and excellent management.

MR. E. L. EATON, Omaha, Nebraska, has likewise become a veteran in photography, having been twenty-one years a "doer of dark deeds." He, too, was given a very handsome notice, by the Omaha Daily Herald, which praises his work in the highest degree.

A Good OPPORTUNITY.—We desire to call the attention of those who are in the market to the advertisement of Messrs. Broadbent & Taylor, in our specialty column, for an operator. These gentlemen have one of the most popular business places in the city, and are men eminently well known in their profession, so that the position would be a most desirable one to the right sort of man. We hope some such one will apply and obtain it.

OUR PRIZE SETS.—The prize prints are now ready for delivery to those who wish them for study. It is no easy thing to prepare them properly, from a set of negatives differing so much as these do; but we are now ready to supply them, and call attention to the list and prices

in our advertisement, in the regular place. Those who wish really admirable studies, will find these of great advantage and low in price.

Testimonials.—We have been lucky enough to receive a good deal of free advertising from some of our would-be cotemporaries, for which we are duly thankful, and from which we are reaping a rich reward. We must, however, ask our friends to rejoice with us over some of the many testimonials which come from those who best understand the worth of our magazine, namely, our old subscribers. Here are some of them:

"We hope while in the business always to be able to greet our monthly friend, the *Philadel-phia Photographer*."—R. R. Thomas, *Goderich*, Ontario.

"It seems to put new life into my gallery whenever it comes. I do not miss anything as I do it when it fails to appear."—J. H. BLAKEMORE, Mount Airy, N. C.

"I thought I could hardly afford to take so many journals as last year, but I cannot feel quite right after all without yours. I have them all bound up to last year, and in nice style."—IRVING SAUNDERS, Alfred Centre, N. Y.

"Let me congratulate you upon your success in obtaining so good a picture of Mr. John Welsh, which appeared in your last issue. It is a most satisfactory likeness, and one of the best illustrations that has ever been offered in your journal."—John C. Browne, (late President of the Photographic Society of Philadelphia).

"Inclosed please find money for one year's subscription to the *Philadelphia Photographer*. I still have an interest in your journal, carbon or no carbon, and hope it will live for all the combined forces of LAMBERT, FITZGIBBON, Bulletin, etc. I thought I would not take it this year, but after reading the Bulletin and the St. Louis Practical Photographer, I think it is my duty to aid an independent journal, so please send it along, and with my best wishes, I am, truly yours, Theron Crispell, Battle Creek, Mich."

"I will say that I still like the "P. P.," as it is termed by LAMBERT, and right here let me say that the attacks on you by him and others do not raise them one bit in my estimation. It remains to be decided whether you are wrong in your opinion or not. Judging by your experience, you had a right to warn photographers about it, and being honest in your opinion, should not have been attacked in such a manner. I do not suppose the above will do you any good, but it is a little satisfaction to one to express their sentiments."—A. B. Stebbins, Tioga, Pa.

A WAIL FROM A VICTIM .- "After the end of the world, those who will be unfortunate enough to be condemned to the eternal fire will say, 'Oh! if we had followed the advice of those who wanted our salvation, we would not be here.' Do not laugh. For it is too late. I guess you will not understand what I mean if I do not tell you. The thing is this: If I had followed your advice, which came too late, it is true, I would not have lost over \$600 in the LAMBERT process, 'the chromotype.' It is very fine; it is very good; it is all this and that; but it will take a long time before it takes the place of the silver print. I know there are men a great deal more intelligent than I am; well, to those I will leave the carbon; my intelligence does not go beyond the silver process. I have been working the carbon process for a year and a half with some success, but nothing that you can depend on, and it is a great deal more trouble than the silver process, notwithstanding all that has been said in favor of the carbon. LAMBERT, who wrote so much against you, is now writing against his former masters. At present there are no patents in Canada for this process. Is there any way of getting back my money? What do you think?"-L. P. VALLEE, Quebec, Canada.

MR. W. IRVING ADAMS, whose long connection with the Scovill Manufacturing Company for these many years, and whose kindly interest, as well as substantial, in all that pertains to the welfare of the photographic fraternity, especially of our National Association and its interests, is well known, has been elected by the stockholders of the Company to represent them as their agent at the New York establishment. Moreover, Mr. Adams has been elected a director of the Company. These new honors now place him substantially in the position which he has really sustained for a number of years, as head of the photographic-supply trade of America in its various departments. No worthier man could be obobtained for such a responsible position, and it will be an advantage still greater to the growth of photography to have him there. We congratulate him, and wish him prosperity and success in his efforts, both for himself and for the trade.

EMULSION WORKERS will be glad to see in our present issue the advertisement of Mr. Albert Levy, 77 University Place, New York, who offers to supply them with a very superior emulsion. We believe there is much advantage in the direction of emulsion, and have heard that the preparation offered by Mr. Levy is very much liked by those who have used it.

## Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

OPERATOR WANTED.—In one of the finest galleries in Philadelphia. Apply, with specimens of work (which will be returned), and photograph of applicant. Also a good Negative Retoucher wanted.

BROADBENT & TAYLOR, 914 Chestnut St., Philadelphia.

## The Wonderful Euryscopic Lens. See Advertisement.

FOR SALE.—If your situation don't exactly suit, read this. The advertiser has been induced to buy a very large photographic establishment in another city. I have here an established business, paying well; I cannot attend to both, and shall sell this very low, and to the right man with a little money, time for the balance would be given. Any one who wants a place if they see it will buy. It has never been offered for sale.

Address E. Adams, Box 508, Gloucester, Mass. Or, George S. Bryant & Co., Boston.

For Sale.—Photograph, Tintype, and View outfit. Good location, light, etc. Rent low. Good bargain for some one. Address, with stamp,

Cow'd LAWRENCE, Damariscotta, Maine.

Any one having any pictures made before 1868 on tinted plates (chocolate or marcon), or knowing where such can be obtained will find it to their advantage to address,

W. C. EATON, Newark, N. J.

#### Waymouth's Vignette Papers.

GALLERY FOR SALE.—One of the best-arranged photograph galleries in Chicago, having eleven rooms, all for \$20 a month; has first-class location, reputation, and customers. Cash receipts from \$80 to \$125 a week. Everything is new, clean, and in good order. A rare chance.

J. M. Lenz,

679 W. Madison St., Chicago, Ills.

Wanted Immediately.—Two Ink and Water Colorists; Ladies preferred. Address

L. D. Judkins,

16½ E. Washington St., Indianapolis, Ind.

A. LAMOR,

EDW. LAMOR,

ARTISTS.

Photographs finished in Water Colors, Crayon, or India Ink, in the highest style of the art.

PORTRAITS IN OIL A SPECIALTY.

Negatives finely retouched.

738 SANSOM STREET, PHILADELPHIA, PA.

#### Hance's Photographic Specialties. See Advertisement.

For Sale.—A portable frame photograph house, 12 x 22 feet, containing head-rests, background, dark-room tanks, chairs, wash-stand, looking-glass, glass-bath, collodion-vials, oilcloth, matting, three frames with specimens, all ready to go to work, except camera and stand. The whole for \$175 cash. Is at present located in this city.

G. & W. H. Rau,

922 Girard Avenue, Philadelphia.

For Sale.—An old established place in a most desirable northeast city. Studio new last September, and everything new put in. Instruments of Scovill's (American Optical Co.'s) make, etc.; Seavey's grounds. Ill health compels me to give up the business. For further particulars, address Box 463, Westboro', Mass.

"Coasting, Skating, Snow, and other Winter Studies."—Having many requests for examples of my winter photographs, and as I cannot afford to furnish so many gratis, I have determined to put them in the market as studies. They are cabinet size, and I will furnish them at \$6.00 per dozen, or 50 cents each, with directions how each picture was managed. Enclose price to Frank Jewell, Scranton, Pa.

#### SEAVEY'S

NEW

#### BACKGROUNDS AND ACCESSORIES 1877—FALL AND WINTER CAMPAIGN.—1878

The newest fashionable Backgrounds introduced by New York Photographers, are

#### Seavey's Snow Landscapes,

Price, per square foot, 25 cents.

Novel and superb pictures produced by using the above, in conjunction with our Winter Foregrounds. Sure to attract customers.

#### Seavey's New Interiors.

Rich in design and fine in execution, at from 25 to 30 cents per square foot. Seavey's Antique Cabinets, never before

offered to the public. Rich in design, . \$40 00 Seavey's Fireplace and Cabinet, com-

bined, an invaluable accessory, . . . 50 00 Seavey's Antique Chairs, . . . 12 00

#### SARONY. KURTZ, MORA,

use no Backgrounds but Seavey's.

Designs copyrighted.

Headquarters for leading styles in Photographic Backgrounds and Accessories,

L. W. SEAVEY'S Scenic Studio,

8 Lafayette Place, New York City.

#### EURYSCOPE.

A. C. North, Toledo, Ohio, writes, Oct. 1st, 1877: "I consider the Euryscope Lens you sent us the finest for the purpose you claim it for to be used. I have just tried it; it works quick, sharp, and gives no flare or marginal aberration. The finest lines are rendered with the greatest distinctness and accuracy, it covers sharp to the edge larger plates than it is listed for."

Wm. H. Roads, Philadelphia, Pa., writes, Nov. 30th, 1877: "I send you by mail to-day a 14 x 17 photograph made with the new No. C. Euryscope, which will speak for itself. We have not done much work with new Lens, but what work we have done with it gives great satisfaction, and I can cheerfully recommend it to any one desiring a good instrument for general work."

L. Moberly, McKinney, Texas, writes, Nov. 23d, 1877: "The No. 2 Euryscope Lens received. I have just made an 8 x 10 group of seven persons with it; time twenty seconds, at half-past three in the afternoon, and cloudy at that, but all is perfectly sharp and crisp. I have tried a great many lenses, but this surpasses them all, and I could not ask a lens to do more. I feel under many obligations to Voigtlander & Son for the introduction of so valuable a Lens."

We have just received a good supply of all sizes of the Euryscope Lenses.

BENJ. FRENCH & Co., Boston, Mass.

GREAT chance to make money. If you can't get gold you can get greenbacks. We need a person in every town to take subscriptions for the largest cheapest, and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address

"The People's Journal," Portland, Maine.

FOR SALE.—The leading gallery in a city of over 40,000 inhabitants, elegantly furnished, conveniently arranged, and as fine a light as there is in the country. Notwithstanding the great depression of business last year (1877), this gallery did an average business of over \$100 per week. \$2500 Cash, and cash only, buys it.

delphia, Pa.

Address, with stamp,
"ARTISTIC LIGHTING," Care Thos. H. McCollin, 624 Arch Street, Phila-

VOIGTLANDER & Son's new Euryscope will be found the most useful Lens any one can have for groups.

BURREL'S CHART AND HINTS TO PATRONS .-Your gallery is not complete without them. For particulars, see advertisement in January, February, and March, 1876, issues of this journal. Price, \$1.25, unmounted, by mail, or by express, mounted.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

By a good operator, retoucher, or to take charge of a gallery; well posted; seven years' experience. Wife is handy, and a good saleslady. No liquor or tobacco. Reference unexcelled. Garvey Donaldson, Dexter City, Ohio.

By a sober, industrious operator. Over twelve years' experience in all branches. Best reference. Address J. R. Devere, 37 Broome Street, Brooklyn, E. D., N. Y.

#### USE WAYMOUTH'S VIGNETTE PAPERS.

As operator and retoucher. Children's pictures a specialty. Address Operator, Lock Box 11, Janesville, Wisconsin.

By an artist of long experience in india-ink, crayon, and retouching of negatives. Salary of no object, if employment can be given for one year. Address W. J. E., Artist, 166 West Huron Street, Buffalo, N. Y.

As assistant by a young man; is acquainted with all branches of the business. Salary not so much an object as a chance for improvement and permanent situation. Reference, Frank Jewell, Scranton, Pa. Address C. J. H., Box 643, Corning, Steuben Co., N. Y.

In some first-class gallery, by a young man who has been in the business three years; can make himself useful in any department; will accept small salary during hard times. Address William J. Blake, Naperville, Illinois.

By a young man of two years' experience, in a gallery where he may be generally useful. Can'do any part of the business except retouch. Address C. Willard, Box 171, Lansing, Michigan.

By a young man of good habits, the position of printer and toner, or dark-room assistant, in a first-class gallery, with an opportunity to advance. Has had three years' experience. Apply to William L. Clarke, 2 Dallas Place, Boston, Mass.

By a young lady of experience, a situation in a first-class gallery, either in the reception-room, or as assistant printer. Has a good knowledge of finishing in water-colors. Address Miss Alice E. Shaw, 37 Hammond Park, Boston, Mass.

By a young lady of three years' experience in a first-class gallery as retoucher; best of reference given and required. Address Box 309, Galesburg, Ills. By a young man of five years' experience in photographing, a situation as printer and toner; can give best of references. Address Chas. M. S., Box 596, Ogdensburg, N. Y.

A photographer of ten years' experience desires a position. Good references from some of the leading men in Philadelphia and Toronto, Canada. Wages moderate. Address Photo., 116 Sargent St., below Kensington Av., Phila., Pa.

By a young man of four years' experience in all branches. Can give good reference. Address J. F., P. O. Box 260, Corning, N. Y.

Gold, Silver, or Greenbacks are what I will exchange my services for, with a "Solid Man." Recommendations first-class. Two years' experience in making sittings, but still anxious to learn. Please address A. C. H., No. 1 Madison Park, Rochester, N. Y.

As an assistant, by one who has had experience in all branches, but mostly in printing and toning. A gallery in New England preferred. Address Photographer, care B. K. Ames, 194 Westminster St., Providence, R. I.

An artist who executes first-class water-color, India ink, and crayon portraits, desires to make an engagement, May 1st, with some responsible photographer in the U.S. Salary low to one promising permanent situation. Address Artist, 29 Robinson St., Toronto, Ont.

By a practical photographer, one who has managed a gallery and done the operating for thirteen years in one place; can also retouch. Salary moderate. Strictly temperate, and of good morals. Specimens sent. South preferred. Address Photo., 229 West 22d St., Eric, Pa.

By an excellent and experienced negative retoucher. Would prefer where he can assist in other branches. Salary reasonable. Address H. B., Cooperstown, Otsego Co., N. Y.

## Emulsion Photographique Française.

Unequalled for rapidity, (fully equal to the bath plate)—Intensity to any degree on simple development without silver or other intensifier, and absolutely permanent and without change.

ALBERT LEVY, SOLE PROPRIETOR,

77 UNIVERSITY PLACE, N.Y.

**PRESERVATIVE** for dry plates, (more rapid than wet) also Prepared Dry Plates ready for use and Photographic Chemicals at lowest market prices always on hand.

PRICE LIST ON APPLICATION.

### BULLOCK & CRENSHAW,

No. 528 Arch Street, Philadelphia,

MANUFACTURERS AND IMPORTERS OF PURE CHEMICALS FOR PHOTOGRAPHY. IMPORTERS OF GLASS AND PORCELAIN, APPARATUS, ETC.

## G. GENNERT

## 38 Maiden Lane, New York

IMPORTER OF THE CELEBRATED

# S. &. M. DRESDEN Albumen Papers

SINGLE OR EXTRA BRILLIANT.

This paper has been imported by me to the great satisfaction of photographers for the last eight years, and has not been surpassed by the many different brands sprung up since.

ALSO,

Hyposulphite of Soda,
Sulphate of Iron,
Solid German Glass Baths,
Saxe Evaporating Dishes,

French Filter Paper,
Porcelain Trays.

## Ferrotype Plates.

I ALSO IMPORT EXTRA BRILLIANT

### CROSS-SWORD PAPER.

For sale by all Stock-Dealers in the United States and Canada.

## REDUCTION IN PRICE!

## THE CENTENNIAL PHOTOGRAPHIC CO.

BEG TO ANNOUNCE THAT THEIR

UNRIVALLED STEREOSCOPIC VIEWS

Statuary, Interiors, Exteriors,

Fancy Groups,
Works of Art,
Machinery, etc.

Making the most unrivalled collection ever published, have been

## REDUCED TO \$2.00 PER DOZEN.

THE FOLLOWING SIZES ARE ALSO MADE:

Card, Cabinet,  $5 \times 8$ ,  $8 \times 10$ ,  $13 \times 16$ , and  $17 \times 21$ .

Liberal Discount to the Trade. Catalogues supplied on receipt of a three-cent stamp.

Every Photographer Can Sell Them.

## Magic Lantern Slides

Over 500 subjects of greater interest than any other class in this line

FOR SALE BY THE

### CENTENNIAL PHOTOGRAPHIC CO.,

Studio-Belmont Av., Exhibition Grounds, Philadelphia.

EDWARD L. WILSON, Prop'r.

City Office, 116 North Seventh St.

Dealers Supplied at the Best Rates.

NEW AND IMPROVED

## Engraving Process.

READ THIS!



READ THIS!

### PERFECT SUBSTITUTE FOR WOOD CUTS.

STATE WHERE YOU SAW THIS.

1878—THE LATEST IMPROVEMENT IN PHOTOGRAPHY.—1878

## HALL'S

## Transparent Crystal Varnish,

For Ferrotypes.

A combination of volatile solvents and soluble gums, forming a clear, transparent, colorless varnish, specially suitable for Ferrotypes.

After many careful experiments, we have succeeded in making what we consider to be the best varnish for Ferrotypes yet made, as it combines all the necessary qualities required in a good varnish, and has none of the objections which other (otherwise good) varnishes have.

A good varnish for Ferrotypes should be colorless, so that the high-lights, half-tones, and deep shadows shall remain brilliant—and pure in tone. It should dry clear without heat, thus saving the expense of gas or burning-fluid; and it should have no offensive odor to annoy the delicate senses of your customers and yourselves. All of these objections we have overcome, and combined in our varnish all the good qualities requisite. As, for instance, this varnish is perfectly colorless, and as clear and brilliant as distilled water. It dries clear in a few moments, without heat, and gives a fine, glossy, transparent film, and has no offensive odor. As a test, we would ask you to order a bottle of your stock-dealer, and try it, feeling assured that you will continue to use it in preference to all others. Each bottle bears our signature. SOLD BY ALL STOCK-DEALERS.

HALL & CO., ST. LOUIS, MO.

JOHN G. HOOD.

ESTABLISHED 1865.

WM. D. H. WILSON.

## WILSON, HOOD & CO.

HAVE COMPLETED THEIR

## REMOVAL

TC



(Opposite Store previously occupied by them), and solicit a visit of inspection from all Photographers. We shall continue to keep a fine stock of

## PHOTO. GOODS, FRAMES, STEREOSCOPES AND VIEWS,

at prices as low as are consistent with the quality of goods furnished. We are indebted to our customers, for their patronage during the past *Thirteen Years*, and our efforts shall be to merit a continuance of it.

We have been appointed Trade Agents for

#### F. R. Cremer's French Lubricator.

A liquid to be used on photographs, to produce by the aid of any burnisher, a glossy, hard and unscratchable surface. We furnish sample bottles and directions free. We also sell

4 OUNCE BOTTLES OF LIQUID AT 25 CTS. EACH. 8 " " 50 " " QUART " \$1.75 "

Discount on quantities. Address orders to any dealer, or to

### WILSON, HOOD & CO.,

No. 825 ARCH STREET, PHILADELPHIA, PA.

#### ST. LOUIS. No. TEN TO TEN .

## J. C. SOMERVI

No. 8 South Fifth Street.

#### OUTFITS SPECIALTY!

THE BEST GOODS AT THE VERY LOWEST PRICES FOR CASH.

Somerville's Extra Negative Collodion. Somerville's Extra Ferrotype Collodion. Somerville's New Diamond Varnish. Somerville's Retouching Varnish.

Tilford's Collodion. P. & W. Chemicals. Frames and Matts of every Description.

#### PHOTO-CHROME OUTFITS COMPLETE, \$2.50.

Convex Glass, Cotton and Silk Velvet Passepartouts, and all goods for the Photo-Chrome Picture kept in stock and sold at the lowest market prices.

Seventeen years' experience. Cash prices and prompt shipment. New packing boxes of the right size at cost. Send a trial order. Send for new Illustrated Price List and Budget for 1878.

## ROBT. HODGE,

SUCCESSOR TO CHAS. W. HEARN,

## Photo. Printing Institute,

209 N. NINTH ST., PHILADELPHIA.

#### NOTICE.

Having sold to my foreman, Mr. Robert Hodge, the goodwill, etc., of the business known as "Hearn's Photographic Printing Institute," I do, with pleasure, recommend him to my customers and the fraternity generally, as fully competent to undertake the same, being a most excellent printer, and able, in giving instruction to students, to do so in a clear and lucid manner.

That success may attend him in his undertaking is the wish of his friend,

CHAS. W. HEARN.

209 North Ninth St., Philadelphia, January, 1878.

Having purchased the above business from Mr. Chas. W. Hearn (with whom I have been connected for some time), I am now prepared to fill orders to any extent, and in every de-

scription of photographic printing.

Being also possessed of unusual facilities, I can assure those who favor me with their patronage that orders will be filled *promptly and carefully*.

Hoping for a share of the favors so liberally bestowed on Mr. Hearn, I am

ROBT. HODGE. Yours,

SEND FOR CIRCULARS.

## SCOVII

## Manufacturing Company,

419 & 421 BROOME STREET,



MERCHANTS IN

## ALL ARTICLES PHOTOGRAPHIC

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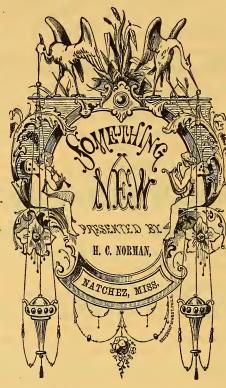
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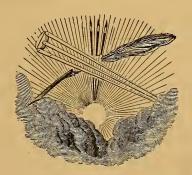
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April, 1878.



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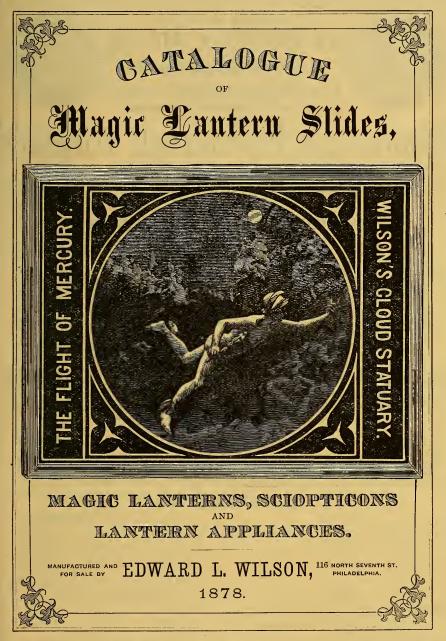
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# Philadelphia Photographer.

Vol. XV.

#### APRIL, 1878.

No. 172.

Entered according to Act of Congress, in the year 1878,
BY EDWARD L. WILSON,
In the office of the Librarian of Congress, at Washington, D. C.

#### CRITICISMS

BY THE COMPETITORS, ON THE PRIZE PICTURES.

WHEN sending the promised sets of the prize pictures to the various competitors for our gold medal, we asked an expression of opinion or criticism from each party. Several have so far responded, and we append their remarks below. Never was better evidence given of the fact that rarely do two persons see just alike. What is said will be interesting and instructive, we hope, and as all is said in a good humored way, and by request, no offence must be taken. We all want to learn, and the friction plan is a good one.

The photographs are at hand, together with a postal card asking my opinion of them. Thanks for the invitation.

The February number of *Philadelphia Photographer* says: "Some grand pictures have been sent in competition for our gold medal." Then follows the review, which I I read with much interest, waiting anxiously to receive the prints. I was so impatient, that I wrote you asking why they did not come. You answered by sending them.

To say I was disappointed, is a mild way of expressing it. I had expected to see some "grand pictures," but aside from three or four of them, I can name half a dozen Western photographers that are making better work every day.

Many of my friends and customers have seen them, and seem unanimous on Bradley & Rulofson's or Anderson's as being the best. I then point them the prize medal picture.

"Why did he make the figure so small, and print it in that shape? It looks cramped, and the background is too sharp, and the shadows are too heavy about the eyes."

These are questions that are asked me. How shall I answer them? Shall I tell them that this style of making the figure so small is all the go East; the shadows about the eyes are necessary, as pictures are made up of light and shade, and the shape that it is printed in is the artistic part that they do not understand?

No. I can't consistently do that, as it would be contrary to my judgment; for to me a majority of them seem to lack *purpose*; there is too much of the consciousness of having a picture taken apparent.

You speak of my subject performing her part, so far as expression and attitude are concerned, remarkably well. She did; and to me, attitude and expression are as much under the control of the artist as fine chemical effects, and even more to be desired.

You ask for my method of working, and any suggestions that may be useful to others in producing the same effects.

My skylight is built after the plan de-

scribed by Anderson, a cut of which is in The Skylight and Dark-room, and is the best light I ever worked under. I am compelled, on account of distance, to make all full-length figures in the west end of the room. This I regret very much, as I can get better results in the east.

During the winter months, I use no screens for the skylight except one of Bird's head-screens. I find it answers every purpose, and is easily adjusted, which is quite an item when customers are waiting.

The lens used was a 4-4 Voigtlander, a very good lens, but not the lens I should ever buy. But circumstances often compel us to do differently from what we may wish to do.

I have used, until I came to Oshkosh, lenses of Dallmeyer's make, and I can see qualities in them that I have never seen in any other make of lenses. The illumination in them is simply immense.

The collodion was Hance's double iodized—and right here let me say, give me a Dallmeyer lens and Hance's collodion, and I can get effects that will please the most fastidious. I have used Hance's collodion for two years steadily, and have found it very uniform, giving clean and brilliant negatives, many times not enough intensity, but that is easily overcome with any of the innumerable intensifiers. I use pyro and silver after the formula recommended by Carey Lea in his Manual, on page 33.

The snow effect was got by loading the subject with salt. I tried snow, but found it no better than salt in effect, and very annoying to the subject, on account of its melting so rapidly. The falling snow was put on the negative with a brush, using any opaque color.

The background is one of Seavey's, and the best he ever painted for me.

If anything I have written will help a brother "silver slinger," I shall feel paid, for I feel indebted to many of them, having been in the ranks eighteen years, read and adopted many good things from them, and this is my first acknowledgment.

Hoping I am not too late, I am
Photographically yours,
Cook Elx,
Oshkosh, Wis.

The prints of the contestants for your gold medal have been received, and as you ask for an expression of opinion, I would briefly say, with one or two exceptions, that they are simply execrable. I would like to know what are the real points of excellence of the negative that was awarded the prize. True, the subject is one, I presume, of some natural grace, and comeliness of person, but badly handled by the photographer. The position of the hands, while quite a common one for ladies, is never one that imparts grace to a pose, and unless to display some striking personal characteristic, should be rarely adopted in a picture—I might say never, in a lady. As to the quality of the negative, I fail to discover its great merits. While it does not lack rotundity or relief, yet it has not that delicacy of half-tone, and perfection of detail, that I think is always indispensable in a photograph that approximates perfection; in fact, I think your judges have fallen victims to a rather taking background, and a false notion as to brilliancy, rather than high excellence of photographic work.

D. H. ANDERSON, (Per B.), Richmond, Va.

I received your card and the package of prize pictures, one from each competitor, this morning.

You wished an expression from me concerning them. As far as I can judge from one picture of each set, I am willing to give you my opinion.

The picture by Mr. Landy, No. 85, I think very pretty, both in position and expression, although I think I have seen finer work from this gentleman. No. 12, of Bradley & Rulofson's, I don't think compares with those with which they gained the prize in 1874. As for the lady's position, I think it a little stiff; the head is twisted around too far, giving the neck a bad appearance. Then if the hand had been dropped a little lower on the balustrade it would have given a better effect to the arm. No 42, by J. H. Todd, I would criticize by saying that if the left hand had been dropped under the other elbow, it would have given the figure a much easier

appearance; as it is, the left sleeve mars the lines of the figure. However, the general appearance of the picture is very pleasing.

I consider the picture No. 18, by Mr. Anderson, very fine; the only fault I would dare to find with it is that the arm is dropped down so that it gives a somewhat awkward appearance to the shoulder.

As for the others, I consider them as the average work done through the country.

You have asked for my opinion on the pictures, and I have given it to you simply as my opinion. The others may find the same fault with my work, as I do not consider it faultless by any means. At your leisure I should be very much pleased to have the full set of Anderson's, Rulofson's, and Landy's, so that I might have a better opportunity of judging of their work.

Thanking you for the pictures sent,

I remain,

GEORGE M. ELTON.
Palmyra, N. Y.

The pictures were received yesterday. Some I like, and others I don't. The "Baby," by Hesler, I think is very sweet and well done. The "Old Gentleman," by Motes, is a very fine work. The "Young Lady," by Lamson, is a very nice pose, but would have been better if he had dropped the shawl off the table, and had a book or two in its place. The one by Roberts is very good, but I would have put a rustic fence in place of the balustrade. Those by Bradley & Rulofson, Landy, Anderson, and Elton, are very Anderson's, I think, is as good as Elton's, with the exception that the table seems to be too much in the way, and the lady seems rather crowded or stiff in some way. Elton's has the same fault, but not quite so much. Landy, I think, shows the roundest work of all; it stands right out, just like life. Mr. Todd's lady with the pet bird, I think is nice; she stands so much like life, and so easy. If it only had more roundness it would be one of the best. There is much to learn from them, and they will be great helps to me. The accessories have a great deal to do in making up the picture so that it will look nice; take them all away from Anderson's and Elton's, and the work is no better than the rest. Mine is the poorest in the lot, but your printer has not done justice to them; he has taken the poorest negative in the lot and printed from that, and the toning I think is very poor, not near as good as the ones I sent you from the same negative. If I am in the business the next time you offer a prize, you will see better work from me.

As you asked me to tell you what I thought of the pictures, I have done so as far as I have studied them. I may see them in a different light after I have looked at them more.

R. W. DAWSON,
Blair, Neb.

I see by the criticism in your journal, you have blamed quite a number for the very thing they tried their best to do, that is, by giving such a variety of positions of the subject. I understood you wanted a variety, and I should judge that most of the competitors so understood it. stated nothing to the contrary in your journal in the regulations. If you had, it could have easily been avoided. It would have been much easier to make six negatives of a subject by only varying the position a trifle. Some may have written to you and got the idea you wanted carried out; such have been more successful. I don't write this, thinking if I had understood the idea that I would have been the successful one, by any means, for I don't think so-for I know that there are older and more experienced hands in the fieldbut that hereafter we may not be misled. You state that instead of going back and reviewing the first six negatives, and selecting the best, we have sent the first six; so we did, and did not do it through a mistake either; and I consider it of more use to the fraternity than it would have been to have selected the best, and then made five imitations. I hope you may not take any offence to what I have written.

> C. W. TALLMAN, Batavia, N. Y.

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#### PRIZE PRINT HINTS.

YOUR offer of a prize for the best six negatives, suitable in ... tives, suitable in size, etc., for the object of illustrating your excellent magazine, I have no doubt will be the means of putting in your possession many beautiful and instructive specimens. I regret, however, to think that it was necessary to offer a premium to the craft to enable you to procure what has become almost a necessity in your valued publication. The whole photographic fraternity of the United States is largely indebted to you for your constant endeavors to ennoble and advance the interests of the photographic profession. To a great many of us, your magazine is more than a welcome monthly visitor. Through the Philadelphia Photographer we become intimately acquainted with each other; and I think that no single page of the journal conveys more instruction than does the illustration. I am more than half certain that all turn to the photograph the first thing; therefore, from the remarks I have already made, I hardly think it would be in good taste to offer any excuse for sending the six negatives and proof prints herewith inclosed. The subject, the obliging young lady and the bird, were kind enough to stand seven times; quite a task, as we all know, particularly when standing without any rest, excepting the indispensable headrest.

You have, Mr. Editor, often impressed upon the minds of your numerous readers the importance of more studious attention to art principles in the practice of general photography, and more varied attention to posing, lighting, and accessory effects. In many other branches of art this is nearly always possible, but in photography it is only practical in very exceptional cases. Undoubtedly the most untutored of our patrons are apt to admire a nicely posed head, a graceful display of pretty hands and arms, even down to upholstered chairs, backgrounds with windows in the corners, vases, pillars, curtains, etc.; but my experience has been so far, that in nine cases out of ten, the photographic subject objects to what he terms "make-ups" (call it what you will), to obtain an effect that is foreign

to the idea and condition of the person that is expected to pay you for your labor. Remember, I am speaking from a country town. I often wish that all this was different-different in many ways; different all through; different in regard to price for faithful services rendered; different, so that a more respectful consideration might be paid to the suggestions we make; different, so that more credit should be given us for using our best endeavors to make the most of the subject in hand; different, so that we could build up or scratch out after the subject had vanished; different, so that the good public would have more faith in our experience and common sense.

The sculptor takes license with his patron's ideas in a manner that would bankrupt any photographer. Even though justified by what is often termed high art principles, and other higher sounding phrases regarding light and shade, etc., only just think for a moment of the effect of art or art rules applied in this kind of tableau: Customer, "I want my 'dogtype' tuk. How is your charges? Well, that suits, fire away." "Certainly, sir; please take a seat," or a stand, as the case may require; that is, pose him. Turn him this way and that way, so as to make the best of my common, not unusual customer. He has very likely just come from the barber's shop, so be careful about touching his wet, greasy, shining hair. His standing white collar makes it almost impossible to turn his head without injury to his throat. Finally, hang a cloak around him (example: Lincoln's statue in Union Square, New York); do you think he would like it? He has his notion about a "pictur," and he has to be suited if possible; that is, if you expect to live from the process of picture-making by the photographic process; and yet the above class of customer is the very life-blood of our business. I mean, from such like we get the most profit-money. They seldom require a sample print, nor do they ever wish to take counsel of a friend before they themselves are satisfied. Tell us, dear Philadelphia Photographer, how to raise above all this? this trudgery, some are vain enough to call it art!

Dear Mr. Editor, these few rambling

remarks have run off at the end of my pencil, and are at your service. They are, however, produced as it seems to me through your brain, and by your request of six negatives. Now tell me plainly, would any of the six be acceptable to a general class of customers? I doubt it very much. I speak, mind you, of photography as a business—a bread-and-butter affair.

I had almost forgotten to add the most important information that this communication contains. As I said before, the kind and obliging young lady stood seven times for the six negatives I forwarded to you. One had bad streaks and faults on the plate. Time of sitting, between two and three o'clock, P.M.; a bright, cloudy day; thirty seconds exposure; a Willard 4-4 tube. I consider it a good one, but lenses are like fiddles. My baths required pretty good performance to bring out their good qualities. Operating-room, 20 x 34 feet; slanting north head-light, and plenty of it; side-light also, only the side-light is badly obstructed by a red brick wall. If I owned the building I would change it. No, I would not; I would rent it and quit the business. Collodion, ammonia-potassa compound, as given in your journal some time ago; a little too strongly salted, as can be seen by the streaks on the negatives from the dip of the plates. Negative bath about forty degrees strong, and decidedly acid. Iron and ammonia developer, and negative made thick enough to print under two pieces of ground-glass in about five to eight minutes in the sun. I now prefer a thick negative, slow to print, if for no other reason than to stop the printer's growl, "that he cannot tone the prints because they are too thin; print too quick." The whole formula is very simple, and with care can be managed without much brains, as I know from experience. It will be well to recollect that to make all compounds work harmoniously, it is necessary to add a just amount of metallic silver or greenbacks, in the form of wages, etc., once a week, besides a very large amount of metallic gold, once a month, to the suboxidized landlord for rent. Confound the man that invented rents.

J. A. Todd, Sacramento, Cal.

#### REVERSED NEGATIVES.

BY I. B. WEBSTER.

MOSAICS for 1878, page 124, commences an article with the above heading. an article with the above heading. I have read it carefully over several times, and have no doubt but any careful manipulator would succeed in producing good results, provided he followed the instructions there given. To be sure, there is much to be done, besides considerable time required to prepare the mixture used; but the supposition is that a sufficient quantity of each could be made in that time to last quite a while. It is not my intention to criticize this article in itself, for if I wished to accumulate a large number of negatives and prepare them to take up but little space and be safely kept and light to handle, I should make strong efforts to make a success of that very formula. It strikes me as a good thing for the economical preservation of choice negatives in large numbers. Reversed negatives are rarely desired, and can be produced in such a simple manner that I cannot see the object in resorting to so complicated a method to obtain them.

It is now many years since I was first called upon to photograph a daguerreotype view which showed all the signs with letters reversed, as all opaque plates do when taken direct in the camera. Of course, we picture men all understand this without my explaining it. In the photograph the negative steps in between the original and the print, and turns everything back to the first position. This being true, how will we turn back on paper the reversed letters on the daguerreotype? If we proceed in the usual way, the negative will impress upon the paper the reversed letters again. The virtue of the Mosaics process referred to consists of its thinness, rendering it easy to print from either side of the negative. It, however, is too complicated for the limited demand of reversed negatives, and we propose to resort to a more simple way. It can be done by placing the original in front of a mirror, so placed as to allow the camera to bear upon the reflection in that mirror, which position is not always attainable.

My brother invented an attachment, to be placed upon the hood of the tube, containing a reflector which was a perfect success in making signs read right (and cipher) upon the opaque plate. This was in 1852. We always used one of these in taking views, until the photograph was introduced. The principle that produced that effect is identical with that of the reversed negative. The most simple way to produce a reversed negative is to place the prepared plate into the shield with the coated side towards the back of the camera, thus allowing the light passing through the tube to carry the image through the prepared plate, and impress it upon the prepared surface of said plate, then the farthest from the tube.

I am prepared to hear several objections raised by some about not being able to get a good focus, or a failure to see how it is possible to hold the plate in the shield, on account of the springs upon the shutter of the shield, etc. I will meet you upon these points right at the threshold by telling you how to do it. First, how to focus. Try and select a plate about the thickness of your focussing glass (you need not be particular to a hair's breadth). Proceed to arrange for your copy just as you would for any other copy. When you come to focus, turn your ground-glass over, by taking it out of its frame and putting it back, so as to have the ground surface towards the back of the camera; then replace the frame in the camera, and proceed to draw the focus. Second, to safely carry the prepared plate in the shield. After carefully placing it in the shield (face up), put a very small piece of blotting-paper right on the prepared surface at each corner, after which lay another glass same size as the prepared one on to it. The pieces of blotting-paper at the corners will keep these two glass plates from coming in contact, and the back plate will prevent the spring on the door injuring the prepared surface. Now shut up your shield, go on and make your exposure, and when you return to the dark-room to develop, do not forget that the plate is in the shield wrong side up. I have made many a reversed negative this way, and saw no difference in the result, other than that it was reversed; just what I wanted.

#### SCATTERED THOUGHTS.

BY F. M. SPENCER.

EIGHTH PAPER. (Continued from page 48.)

T is, perhaps, not too much to say that, of all the labor processes and duties of the practical photographer, copying is most irksome and least fascinating of all; at least so far as the work can be carried forward photographically it is purely mechanical, and generally confines the operator to a mere reproduction of the works of another with all their faults; it allows little play of imagination or sympathy with the model, and tends rather to degrade than elevate taste. It is not at all strange, therefore, that so little, comparatively, has been written on this subject. As I propose to devote this paper quite entirely to copying, as applied to portraiture, I shall probably repeat sometimes items mentioned in preceding papers.

A good copying-table and a modification of the camera-box is about all the fixtures needed (not the same as used in life work). The table should be six or seven feet in length, and a little wider than the box, standing about twenty to twenty-four inches high, with ledges on the sides; and, if rollers are not set in the bed of the box, it is a good plan to have a false bed made just wide enough to play between the ledges of the table, into which the rollers may be set, so that the camera may be moved easily back and forward. Into the front of the table should be set a rigid target-post, exactly perpendicular to the bed of the table. Let the target-board slide up and down on this post with a set-screw to secure it at the right elevation. The target should be made to slide in grooves horizontally upon the target-board, and be provided with springs to hold the object or picture to be copied, so that the picture may be set and quickly brought into the field of the camera without resetting from one to a dozen times. Only the front legs of the copying-table should be on castors.

When a copying-box is not at hand, any box of sufficient size will answer, if in good order, by having cones or extensions made to fit into the front of the box. Straight sections, fitting into each other, and into

the camera in place of the front, and so constructed that the ordinary camera front will fit into one or all of them, will be found most convenient, if not better than most of the copying-boxes in use, and make it possible to enlarge any picture to the size of the largest plate the box will make, by simply increasing the number of extensions.

Having got everything ready and picture adjusted, the next thing to consider is the light; or rather, we will now consider it, for you ought to decide that at sight of the picture. Daguerreotypes, tintypes, and ambrotypes should always be illuminated by full sunlight, for only the most powerful illumination will bring out all the details. Dark photographs, or photographs having heavy shadows, should be copied in sunlight; but it is an excellent plan to interpose a ground-glass between the sun and the picture, or a screen of two or three thicknesses of tissue paper will serve as well if not better than ground-glass.

In copying daguerreotypes, move the table so that the bronze-colored reflection falls outside of the field of the lens, which usually requires a very oblique direction to the sun's rays. The polishing lines or scratches of the plate will usually disappear by this means also. The exposure should be just long enough to catch all the details of the picture.

In copying photographs that are reasonably sharp, it will often be found beneficial in softening the enlarged grain of the paper (enlarged fibres) to move the lens slightly out of focus after the exposure is about half No special change or quality of done. chemicals is necessary, except that the collodion should be rather old and ripe. Proceed with the development the same as for life work until all the details of the original appear, when the iron should be washed off' and the development continued with pyrogallie acid and silver until all the intensity desired is obtained. Great care should be observed to wash out the iron thoroughly to avoid stains that will not disappear in cleaning the negative. If sufficient density is not obtained before cleaning the negative, repeat the pyro and silver after cleaning; and it will often occur, where much pushing is required, that the plate seems to become stained a reddish-brown, or almost black, but usually after washing well the stain will entirely disappear by flooding the negative with cyanide; and, as a last resort, it may sometimes be necessary to color the negative with sulphuret of potassium or bichloride of mercury. Such negatives, however, do not keep well.

There may be some who will see this article that do not understand using pyrogallic acid and silver, and for their benefit I will explain it a little. Dissolve sixty grains of pyro in thirty-six ounces of water, and add sixty grains of citric acid and one to one and a half ounces of acetic acid. In another bottle, make a fifteen- or twenty-grain solution of nitrate of silver, and when ready to use drop a few drops of silver into a small wide-mouthed vial, and pour upon the negative enough of the pyro solution to cover it, keeeping it in motion until it flows quite smoothly, then drain into the vial containing the few drops of silver, and return to the negative, flowing it on and off until the desired result is obtained; and by letting the pyro and silver fall by drops or a small stream upon the face or any part of the negative most needing strength, the after-development may be made to assume a local character. The operator who does not understand manipulation with pyro and silver is not well up in negative making, and should lose no time in becoming familiar with it, as it is quite indispensable.

Copies, especially enlargements, generally need heavier retouching than negatives from life, and a smear of pine-tree resin and camphor is very useful to give a good tooth for the lead. Make a saturated solution of resin in spirits of turpentine, and to an ounce add a lump of camphor about the size of a bean; apply sparingly to the part to be retouched with a bit of cotton, and wipe off any excess quickly with a fresh bit of cotton, and after a few minutes it will take the lead freely. The space to be retouched may be roughened and retouched in the usual way, and the smear applied over it. If a second course of retouching be desirable, and if the retouching be unsatisfactory, a bit of cotton and a drop or two of spirits of turpentine will remove it.

There are also a few dodges in printing

copies, of great value, that I can recommend, and which I do not think are generally well understood.

Vignettes will often appear to better advantage with the groundwork graved more or less deeply, so that the high-lights of the picture may not be killed by the intenser light of the margin, and are best done by placing the print upon a pad and laying over it, to hold it flat, a sheet of clean glass, quite free from any imperfections, which may be held in the left hand while exposing to the light. Full sunlight, if convenient, is best. The figure (vig.) is to be shielded by a bit of card-board, cut to the right size and shape, and fastened to a wire, which may be held in the right hand, and by keeping the shield moving, blend the vignette into the border. Full prints of light grounds, injured grounds, or enlarged copies from photographs, showing fibrous lights and shadows, may be treated in the same way. Varying the form of the shield to suit the shape of the portion of the print not to be reprinted, and by taking advantage of sunlight and shadow at the same time, the background may be graduated at pleasure. It is often, indeed, advantageous to expose all parts of the print (except so much as usually shows in a vignette) to sunlight for a few moments, using a vignette shield to cover the face, collar, and shirt front. When it is desirable to print in a false background, fasten the paper upon which the mask is printed with paste to one end of the negative, which may best be done by having the paper long enough to double back over the top end of the negative, and pasting to the edge of the glass side, so that upon cutting the mask it will exactly adjust itself.

Having printed the mask until the outlines are all out, take the negative out of the frame and lay it face up, with the top end to the edge of another sheet of glass; turn the mask back and carefully cut out the figure with a sharp knife, and replace the negative in the frame and make a print. Now take a sheet of clear glass somewhat larger than the print, and with a bit of wax fasten the figure cut out of the mask, face to the glass; lay the print upon a pad upon a second glass of the same size, and adjust the figure of the other to the figure of the

print, so that they superimpose; holding the whole in place with the hands, expose to light, and by a slight but dexterous movement of the upper glass, the background may be printed in so that no white line will show at the outlines of the figure, and by taking advantage at the same time of sunlight and shadow, the background may be graduated at pleasure; in fact, this sunlight and shadow dodge is a good one for everyday use.

The toning and finishing of the prints may be done in the usual way until they are ready to retouch. Albumen prints should never be retouched in dead pigment; the pigment should be mixed or ground in albumen of full strength, or the albumen should take the place of the water-cup for moistening the brush, or both. The albumen may be prepared by beating the white of a fresh egg to a stiff froth, and decanting the clear part that settles. Albumen so prepared may be dried in saucers and bottled up for future use, in mixing pigments, or for albumenizing glass, as it readily dissolves in water. Colors wrought on albumen with albumen, match, so to speak, in glass, and are more easily applied, the color being much less slippery than with water.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E. (Continued from page 81.)

ET us turn our attention now to the subject of chemical equations. The various reactions are generally represented by these equations. The formulæ of the substances are written and connected by the sign plus, which must not be understood to have the same meaning as in mathematics, but simply as a conventional method of signifying that the substances thus connected have been brought together. These form the first member of the equation, after the marks of equality (which must also not be interpreted mathematically, but simply as indicative that what comes after is what has been formed from what goes before by the chemical action, thus illustrated). After the marks of equality, then (that is to say, in the second member), are written the formulæ of the substances formed by the

chemical reaction thus represented. example, if we know that when hydrochloric acid is added to a solution of nitrate of silver (that is, in exact proportions), that chloride of silver and nitric acid are formed, we could indicate the reaction by the following: AgNO<sub>2</sub>+HCl=AgCl+HNO<sub>3</sub>, it is most evident that there must be the same amount of each element on each side of the equation. If such is not the case the equation is at fault (but if it does fill this requirement fully, it does not signify that it represents the chemical action correctly). Leaving for an instant the equation, let us look at the various forms of chemical action, or rather of chemical changes. We have then, first, those of combination, as when oxygen and hydrogen unite to form water, thus: 2H+O=H<sub>2</sub>O. Also when oxygen and carbon unite to form carbon dioxide: C+2O= CO2. In each of these we see two substances uniting to form another. Secondly, we have those of decomposition, the reverse, as its name implies, of the preceding. Thus, when potassic chlorate is heated, potassic chloride and oxygen are formed, as follows: KClO<sub>3</sub>=KCl+3O. Here we see one substance being divided into two others. Thirdly, we have those of displacement or substitution, in which one substance takes the place of another in a salt. Thus, if a piece of iron be placed in a solution of chloride of copper, the iron will be attacked, forming chloride of iron and metallic copper, as follows: CuCl<sub>2</sub>+Fe=FeCl<sub>2</sub>+Cu. Here we see that the iron displaces or is substituted for the copper in the salt. And fourthly, we have those of double decomposition or mutual interchange, where the bases of two salts change places. For example, when a solution of nitrate of silver is added to a solution of chloride of sodium, nitrate of sodium and chloride of silver are formed, thus: NaCl+AgNO3=AgCl+NaNO3, in which the bases have changed places in the salts. Somewhere under these four heads each and every chemical action can be placed.

These being the divisions of the kinds of chemical action, it would be profitable to look into the various causes that govern, and reasons for them, so that we may with some degree of certainty, predict what reaction will take place before we actually perform it. Indeed, if we are absolutely correct in our premises, if we rightly understand the facts concerned, and to them rightly apply the facts soon to be stated, we will infallibly know what will happen in any particular case. We may then, with reference to chemical reactions, make two general rules to cover the whole ground, as follows:

1. If by mixing two substances a compound can be formed that will be insoluble in the liquid then present, this compound will be formed and precipitated; and

2. If by mixing two substances, compounds can be formed which will be soluble in the liquid present, these compounds will be formed in variable proportion. latter of these two may appear ambiguous at present; it will be explained below. To specialize then, we have under the first rule the fact, that if solutions of two salts be mixed which can form a substance insoluble in the whole of the liquid present, it will be formed and precipitated thus: NaCl+Ag NO<sub>3</sub>=AgCl+NaNO<sub>3</sub>. AgCl is formed and precipitated. Then under the second rule, if two salts are mixed, that by double decomposition form two salts soluble in the liquid present, these will be formed in variable proportions and remain in solution in presence of a portion of the original substances, thus: zNaNO3+xKCl=yNaNO3+ uKNO2+vNaCl+wKCl (the letters u, v, w, etc., are used when no definite amount of the substances, in this case potassic chloride, sodic nitrate, etc., are represented).

Again, with the first rule, if an acid be added to a solution of a salt, which can form with that salt a new salt insoluble in the liquid and the acid of the first mentioned salt, it will be formed and precipitated AgNO<sub>3</sub>+HCl=AgCl+HNO<sub>3</sub>; but on the other hand, if the acid could form a salt insoluble in the liquid, but soluble in the new acid formed, no change will take place. Again, under the same head, if the acid can form a salt soluble in the liquid and the new acid, such a formation will occur in a variable degree, thus: zH2  $SO_4 + xKNO_3 = yH_2SO_4 + uK_2SO_4 + vHNO_3$ +wKNO<sub>3</sub>; and again under the first head, when an acid is added to a solution of a

salt whose acid is insoluble in the solvent, the acid is separated and precipitated. Under the same head also we have when a hydrate of a base is added to the solution of a salt whose hydrate would be insoluble in the liquid then present, that hydrate is formed and precipitated. Under the same head, but the reverse of the preceding, when a hydrate of a base is added to a solution of a salt whose acid can form an insoluble salt with the base of the hydrate, that salt is formed and precipitated. Another and final case, under the second head, is when a hydrate is added to a solution of a salt which can form an insoluble salt, part of the constituents undergo double decomposition, the remainder stay in their former

There is another fact that it may be better not to omit, and that is: If two substances (in solution) be mixed together, and by an interchange of elements of the two a substance can be formed that at the temperature of the liquids is volatile, that substance will be formed and set free. When hydrochloric acid is poured in baking soda, is a good example, the reaction is: HNaC  $O_3 + HCl = NaCl + CO_2 + H_2O$ . It may be also well to state that in writing equations, the water of the solutions is not taken into account except it enters into the reaction, or is one of the products of the reaction as in the second member of preceding

By means of the abovementioned facts, chemical reactions can, as a general thing, be foretold; perhaps the best way of showing how may be by giving a few examples.

Suppose we had solutions of sodium, chloride and silver nitrate, and we wished to know what reaction would take place. One of three things must happen, either the substances will remain unchanged, or double decomposition will take place in part, or completely (when a precipitate will be formed). These in the form of equations would be:

- (1) NaCl+AgNO<sub>3</sub>=NaCl+AgNO<sub>3</sub>.
- (2) xNaCl + yAgNO<sub>3</sub>=uNaNO<sub>3</sub> + vAg Cl+wNaCl+zAgNO<sub>3</sub>.
  - (3) NaCl+AgNO<sub>3</sub>=NaNO<sub>2</sub>+AgCl.

Let us commence with the third of these, for this reaction to take place, one of the salts formed must be insoluble in the liquid present, as we know by the before mentioned rules. Would the sodium nitrate be insoluble? By consulting tables of the insolubility of various salts, we would find that it would not be. Would the silver chloride be? By the same authorities we would find that it would be insoluble. But are there any acids in the solution in which it is soluble? No. Hence we conclude that double decomposition would take place, that chloride of silver would be precipitated, and that nitrate of sodium would remain in the solution. In other words, the third equation of the three just given would correctly represent the reaction. Take another case.

Ferrous sulphate and hydrosulphuric acid, the reaction will be either of these:

 $\begin{aligned} &\text{FeSO}_4 + \text{H}_2 \text{S} \!\!=\! \text{FeSO}_4 + \text{H}_2 \text{S}. \\ &\text{xFeSO}_4 + \text{yH}_2 \text{S} \!\!=\! \text{uFeS} + \text{vH}_2 \text{SO}_4 + \text{wFeS} \\ &\text{O}_4 + \text{zH}_2 \text{S}. \end{aligned}$ 

FeSO<sub>4</sub>+H<sub>2</sub>S=FeS+H<sub>2</sub>SO<sub>4</sub>.

Let us begin again with the last of these three. As before stated, if this takes place, one of the compounds represented in the second member must be insoluble. By consulting tables of solubilities as before, we find that FeS is insoluble in water; so it commences to look as if this might be the reaction. But could there be any acid present in which the FeS would be soluble? There is certainly free sulphuric acid present, and by consultation with the authorities we find that FeS is insoluble in this; hence it would not be precipitated; hence the reaction would not be represented by the third equa-How about the second equation, then? If this be correct, the new salts formed must be soluble in the liquid present; but it has been shown that FeS is insoluble in the liquid present (H2O), but soluble in the new acid formed. So it is concluded that that equation does not represent the reaction. The first, then, must be the correct one, and so we find it coming under the head of one of the cases before given. Examples might be multiplied almost without end, but they are all so very much alike that it would be useless. This process can, however, be reversed, and when one pours two substances together and obtains a precipitate, he may easily find what that precipitate be (although it is much easier to consult works on the subject of qualitative analysis whenever such a thing occurs). Take but one example. A solution of ferrous sulphate is added to one of barium carbonate, and a white precipitate is obtained, what is this precipitate? We will have FeSO<sub>4</sub>+BaSo<sub>4</sub>=precipitate+solution.

It may be set down as a rule, that when two solutions, on being mixed, produce a precipitate, that the reaction comes under the head of "double decomposition." By this the equation would be FeSO<sub>4</sub>+BaCO<sub>3</sub> =BaSO<sub>4</sub>+FeCO<sub>3</sub>

We will then find that the barium sulphate is insoluble, and the ferrous carbonate soluble. So we conclude naturally and correctly, that the precipitate is barium sulphate, while the solution contains ferrous carbonate.

But these things belong most strictly to analytical chemistry, and it is hoped that the reader will pardon the digression in their favor, since, although it may not belong here, still is not exactly out of place.

The chemical equation, however, is the key to the whole art. Whoever understands that thoroughly, will understand all chemistry; he will hold the touchstone by which to change all difficulties to clearness; he will hold the "open sesame" before which the doors of chemistry will swing back and reveal all its mighty treasures.

But the few uses that have been made of it heretofore are by no means all that it can be employed for. It is the foundation of, and by it lies the solution of the so-called chemical problems. In what manner and by what means, will be seen further on.

(To be continued.)

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 4.

The Instruments and varied Apparatus used in all of the separate Departments of Photographic Establishments.

BY far the most important article of furniture in the photographic studio is the camera, its lenses, and its other appurtenances. The lenses are inclosed in tubings, furnished with "stops" and rackwork. For

convenience sake the combination is entitled an "objective." The camera-box with its objective seems to be but man's feeble imitation of the incomprehensibly wonderful instrument provided for our use by a mightier power. In relation to this, a clipping from one of Prof. Morton's published lectures states that "the human eye is in all respects a complete camera, with a variety of 'globe lens,' provided with 'adjustable stop' and a concave 'sensitive film' at the rear of its 'box.'

"In addition to all these resemblances the eye has other properties still further allying it to the camera of the photographer. Thus its sensitive film will retain an image produced upon it for a moment, though this cannot be fixed or made permanent.

"The forms of lenses which are used in the optical department of photography can be divided into two distinct classes. The convex lenses, all of which are *thicker* in the middle than at the margin, and the concave, *thinner* in the centre than on the margin. We further distinguish these as follows:

- "1. Bi-convex—with two convex surfaces.
- "2. Plano-convex—one plane and one convex surface.
- "3. Concavo-convex—one concave and one convex surface.
- "4. Bi-concave—with two concave surfaces.
- "5. Plano-concave—one plane and one concave surface.
- "No. 2 differs from No. 3 in so much that the former is thicker, and the latter thinner, in the centre than at the margin.
- "The connecting lines of the centres of the spherical surfaces form the axis of the lens.

"The collecting lenses have, within certain limits, the faculty of collecting to a point the rays, which proceed from a point, provided that these points are situated on the axis or near it, and provided that the angle which the rays form with the axis is not too large. When, under these conditions, a bundle of rays, parallel to the axis of the lens, falls on a lens, the rays will be united in a point back of the lens, and this point is called the focus, and the distance

between the focus and the lens is called the focal distance."

Spherical Aberration may be described thus:

"When a single lens (a so-called landscape lens) is attached to a camera, and when we remove all the stops, we cannot obtain on the ground-glass a picture which can be called absolutely sharp, for such will always show blurred and ill-defined outlines. The cause of this want of sharpness is the unequal refraction of the marginal rays as compared with those of the centre. The margin of the lens is, so to speak, a prism with a much stronger refracting angle than the centre. The picture, however, will become instantly sharp when we cover the front of a lens with a disk, in the centre of which a hole has been cut, or, in other words, a stop."

Chromatic Aberration.—" The white light suffers in its passage through refracting mediums, not only by the refraction, but also by the dispersion of color, the cause of which is that the apparently monochromatic white light consists of rays of different quality, which partly distinguish themselves by their different effects on the retina and chemicals, and partly by their different refractions. Red has the least refraction; violet the greatest. The dispersion of color is most beautiful in the passage of white light through a prism, and then it gives rise to a colored band—the spectrum—in which the seven principal colors, the violet, indigo, blue, green, yellow, orange, red, are distinguished. As a lens, however, is analogous to a system of prisms, such a dispersion of color must necessarily also take place in the passage of white light through a lens, and as violet light is more refrangible than red, it follows that the violet rays will intersect the axis closer to the lens (after having passed through it) than the red. Hence, when a bundle of parallel rays of white light passes through a lens, the rays will not, after having been refracted, be united in a single point, but will, according to their different refrangibility, be placed at different distances from the lens on the axis of the same. The violet ones being the nearest to the lens, the red ones the farthest, and instead of having a single point, the focus, which would result with the employment of a monochromatic light, we will have a line of differently colored foci. This error is overcome by the employment of two lenses, which are made of different kinds of glass (crown and flint).

"The qualities expected in a photographic lens are: 1. A great amount of light, to enable us to take, in the shortest space of time, the picture of a dark or moving object. This can only be accomplished by a large opening and short focus. 2. Great sharpness, even to the margin—a quality that can only be secured by the employment of small stops, and just the opposite condition to what is required in the first case. 3. A large and plain field of view. This requires very oblique rays of light, for which the spherical aberration and the curvature of the picture can only be corrected with great difficulty. 4. Freedom from distortion. 5. Absence of chemical focus. 6. Equal intensity of light over the whole field of view. 7. Depth, or equal sharpness for objects which are at unequal distances from the camera.

"All these conditions can only be fulfilled with difficulty, and not at the same time, and this is the reason why we have no universal lens answering all purposes. For this reason, also, we are compelled to employ different lenses for different work."

(Mem. The preceding remarks are condensed from the able writings of Dr. Vogel; the following are from a paper prepared by J. H. Dallmeyer, the celebrated manufacturer of lenses.)

"Portrait lenses are more or less rapid in action, as their diameters are larger or smaller, or as their focal lengths are shorter or longer.

"The focal length of a lens regulates the size of the pictures, and the diameter expresses its speed or rapidity of action.

"Having fixed upon some size of picture to be taken, the next point to be determined is the most suitable focal length of lens.

"This involves the prior determination of the distance at which to place the subject; for, as every photographer knows, by bringing the lens nearer to the subject, the image increases in dimensions, and vice versa. What, then, is the proper distance

at which to place the subject from the lens? In answer to this query, it may be safely asserted that it should not be less than, say, twelve feet, nor, perhaps, more than twenty-five feet; for if less, the resulting picture will generally be defective as regards definition and perspective, because the lens producing it will be of too short a focus, or made to include a larger angle than it properly covers; and if more, the picture will probably be deficient in boldness.

"For a distance of about eighteen to twenty feet between the lenses and subject, the *equivalent* focal length of the lens for a given sized plate should be about double that of its largest side; that is, for  $4\frac{1}{4} \times 3\frac{1}{4}$  plates (or card size) the focus should be from eight to nine inches; for a  $6 \times 5$  plate (cabinet size), twelve inches; for  $10 \times 8$  plates, twenty inches.

"The next point requiring consideration is its rapidity of action. Of course, every photographer wishes not only to possess a quick-acting lens, but that it should also have a flat field, and give great depth of focus or definition, forgetting all the while that these qualities are diametrically opposed to each other, for he who will have greater rapidity must, to use a familiar phrase, 'pay for it' in flatness of field and depth of definition. Thus, of two lenses, both perfectly corrected for spherical aberration, and of the same focus, the one of two inches diameter will have double the 'depth' of another of four inches diameter, whilst the latter, in turn, is four times quicker in action.

"Again, of two lenses of the same rapidity (i.e., having the same ratio of aperture to focal length), the one of double the focal length of the other will have but one-quarter its 'depth;' as, for example, a card lens of, say, nine inches equivalent focus and two and three-quarter inches aperture, producing a card at twenty feet distance, will sufficiently define accessories, etc., eighteen inches in front and eighteen inches behind the figure or object focussed upon, or have a depth of focus of, sav, three feet; whereas a lens of double the above dimensions (i. e., of eighteen inches by five aperture), and worked at the same distance, will only have a depth of nine inches, or four and a half inches before and behind the point focussed upon.

"As regards the best position of the camera, it has already been stated that no lens has a perfectly flat field; hence, for a standing figure requiring a flat field, it is of the utmost importance that the camera should be so positioned as to favor the lens. This, for card portraits (equivalent focus of lens about nine inches, back focus six inches, and distance of subject eighteen feet, the camera without a swing-back), is as follows: Height of centre of lens from the floor, about four feet ten inches; rising front of camera to be elevated one-quarter inch; and then the image made to occupy the centre of the plate, i. e., equidistant between the top and bottom of the screen. To effect this the camera will require to be tilted forward slightly, which insures a more natural view of the face than when placing the camera lower and level, in which case the view of the face obtained is, as it were, that of looking up into it. Having got the image in the centre of the plate, focus for the eye, and then for the chest, or some prominent object on the chest, as a watch chain. Now halve, as it were, the focus between this and the eye, when it will be found that the resulting picture will be evenly defined throughout its entire length.

"A sitting figure requires the camera to be placed at a proportionally lower elevation, and here a swing-back is of great advantage. Indeed, portraits beyond the halfplate size should never be attempted without this adjunct to the camera; for, as has been shown already, larger or longer focus lenses are much more sensitive to difference of distances; and in a sitting figure the feet are often as much as twenty-four inches or more in advance of the face. This occasions nearly a quarter of an inch of difference of focus for a twenty-inch focus lens, and, therefore, without a swing-back, allowing the top of the screen or slide to be pushed out that distance, definition of the legs and feet simultaneously with the head cannot be secured.

"Photographers accustomed to work with short-focussed lenses, *i. e.*, at short distances from the subject, often complain of lack of brilliancy and roundness in their pictures when taking to the use of longer focus lenses, or working at greater distances from the subject. Now, in most cases, this is simply a question not of lens, but of lighting, for it is obvious that the direction and amount of light suitable for a subject at twelve feet distance requires considerable modification for one at twenty feet."

For many years it remained a matter of dispute as to which of the *camerus*, those manufactured in England or those made in America, could claim priority of choice for general excellencies of construction.

The matter was decisively and finally settled by the introduction to photographers' use of the varied and unexcelled boxes produced in the workshops of the "American Optical Co." It would require more space than I am allotted to describe each of all of their many sizes and styles. It will suffice to say that every improvement that American ingenuity has been able to devise has been taken advantage of, and that now their camera-boxes are acknowledged to be par excellence the best in the world. Their catalogues will give minute information as to all of their specialties.

As to the use of an ordinary camera for copying purposes, I can do no better than to bring to light a "scrap" written by George H. Fennimore, and published in the *Photographer* at least eight years ago. He says:

"I was asked why a camera that will make a whole-sized picture from life will not make one of the same size from a card picture? I found the question was asked seriously, and the party said he had often tried to reproduce an enlarged picture from a card or daguerreotype, but never succeeded in getting anything more than one a little larger than the original. He had used a whole-sized tube and box. I soon explained to him the nature of the trouble.

"When about to purchase a camera, always bear in mind that the size, no matter what it is, will only reproduce a picture its original size; that is to say, a half-size camera and half-size tube will only reproduce a picture its original size, no matter whether it be a card picture or a half-size picture. If you wish to copy a whole-size picture to its original size, you must have a

whole-size camera and lens; an 8 x 10 box and lens for an 8 x 10 picture, and so on for the different sizes. This plan of working would require one to have a number of boxes and tubes, which would be both expensive and troublesome. There are two ways to obviate this, viz., either to have a long, bellows camera, made on purpose for copying, or to have a simple contrivance called a 'cone' made to fit in your ordinary portrait-box. A camera, when extended, giving a dark chamber thirty-four inches in length, with a double whole-size lens attached, will only make a 11 x 14 picture its original size. If now we take off the double whole-size tube and replace it with a whole-size tube it will make a 11 x 14 copy from a whole-size original. Again, if we replace it with a half-size tube, we can make a 11 x 14 copy from a half-size picture. If now we want to copy a card picture to a 11 x 14 size, the camera will not be long enough, and we must either have a longer box made especially, or use a cone. The latter, when twenty-four inches in length, in connection with the box itself, gives a focal length of fifty-eight inches. This is ample for permitting us to make a 11 x 14 copy from a one-ninth size (or smaller) ferrotype, or other analogous picture. The same rule holds good with all cameras. If a whole-size box is the largest you have, a quarter-size tube will give you a whole-size picture from a medium ambrotype or card; but if the picture to be copied is smaller than that, you will need a cone, which, however, need not be over twelve inches long."

Before concluding this subject, I cannot too highly recommend to those who have not tried it, the use of the swing-back camera. By its use we can get the whole picture very sharply defined, more particularly in portraits and landscapes. The very excellent cameras of the American Optical Company are nearly all made with the swing-back.

Camera Stands, although offered to us in great variety, still seem to open a field for improvement to inventors. Each description presents advantages and demerits as well. Those supplied with levers offer a ready means of raising or lowering the instrument. Unfortunately, however, the handles of these levers always seem to be in the way, and the slightest accidental collision with them noisily displaces the whole arrangement, to the infinite mortification of the operator and the consternation of the sitter.

The old-fashioned tripods have long ago disappeared from the operating-rooms of all but the most primitively appointed galleries. The American Optical Company's "Perfect" camera-stand is doubtlessly the best in the market. Iron stands have also been introduced, but generally these are too heavy, and ruin the floor or the carpets.

The Head-rests constitute another class of vexations, but essentially necessary accompaniments to the outfit of an operating-The simplest form, and the one generally used, merely consists of a vertical iron rod (with head tongs) that slides up and down in, and can be screwed tightly to, an iron base. This apparatus could be easily improved by substituting for the round a triangular-shaped rod, and for the holding-screws short-handled levers. approved style, now used in all leading establishments, is known as "Wilson's Improved Rest." An ingenious contrivance secures its portability, whilst at the same time it possesses sufficient firmness and solidity to give a real support to even a standing figure. The mechanical arrangement of the rods renders it very easy to hide them behind the subject, and as well, allows us to use the apparatus indifferently for a very small child or an overgrown man.

The "scraps" relative to backgrounds and accessories will be held for future use, together with those appertaining to "posing and lighting."

In the dark-room there are very few articles of apparatus necessary that are exclusively the property of that particular place. Of these the most important are those dedicated to the holding of bath solutions. They should be of glass, and inclosed, for safety's sake, in strong, well-made, wooden boxes. Tanks are generally made to fit into the spaces where they will be least in the way.

In the printing department much ingenuity was formerly expended in the construction of washing-tanks especially devoted to

the elimination of hyposulphite of soda from the prints. I have the designs and the descriptions for a number of different contrivances. The best of these necessitates a circular galvanized iron tub, about five feet in diameter and five inches in height. It is provided with a conical bottom, terminating with a waste-pipe. At the bottom of the sides (or the top of the cone) a false bottom, perforated with holes, stretches across the entire space. The supply-pipe extends around the circumference of the tank. prefer it being placed near the false bottom, so that the streamlets issuing from it will spring up and not down upon the floating pictures. A siphon should be so arranged as to empty the tank every ten minutes. Finally, a shower-bath, placed some two feet above, will aid in keeping the photograph in motion and pattering out the obnoxious soda.

Within the last few years another plan has been gaining favor, dispensing with this somewhat costly apparatus, and reducing the time of washing to at least one-sixth of that which was formerly requisite. It will be fully treated of in the series devoted to printing.

The miscellaneous agglomerations of a photographer's establishment need no special description in this series. Funnels, bottles, and dishes accumulate with unaccountable rapidity, and are only too familiar to the proprietor. That care should be exercised in the proper preservation of every article with which we appoint our places is an injunction that, although constantly urged, is but little heeded in many places, even of a pretentious character. There has been enough negligence in this respect to encourage the adoption of the maxim, that such and such a place is as dirty as a photographer's work-room.

#### WHAT IS IT?

\_\_\_\_

THREE stereo negatives are sent to you to show a peculiar spotting which has given me trouble for several years.

When making views I wash the negative after developing, and flow with glycerin and water, equal parts, which keeps the film moist until a more convenient time when it can be developed and fixed. If the negatives are not fixed for several days, these spots make their appearance, as if the negative had been sprinkled with fine black pepper, ruining the skies, especially if any fine cloud effects have been secured. As they give more trouble in hot weather, I have believed them to be mildew spots, but have never found a perfect remedy. Have tried glycerin and acetic acid, equal parts; also acetic acid No. 8, full strength, with slight improvement.

If any other "knight of the tripod" has been likewise vexed, let us hear from him.

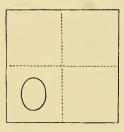
FRANK ROBBINS, Oil City, Pa.

[Will our readers please give us their ideas through these pages?—Ed. P. P.]

#### A CHEAP MULTIPLIER.

In my work I have invented a very simple means of producing several pictures on one plate (the same as those produced by a combination of gem tubes), with a single tube camera. It costs only about five minutes' work, and works like a charm when done.

Here it is: Cut a piece of pasteboard just the size to fit tight in the camera, closely



in front of the ground-glass or plate-holder. If you want four gems on a one-quarter plate, cut an oval in your card just in front of, say, the lower left quarter of

your plate. Now make your exposure, and turn your eard from left to right, and make your exposure on the lower right quarter of your plate; now turn it from bottom to top, etc. In this way, with one or more eards, you can make as many gems on a plate as you want to. It will be found particularly useful in taking pictures of the little folks.

This may have been known to many of your readers, but as far as I know it is ori-

ginal. However, I hope it may prove beneficial to some.

HENRY W. BROWN,
Bannack, Montana.

#### WITHOUT ACKNOWLEDGMENT.

"CIR: Though perhaps I ought to have O felt flattered, yet I must say I felt just the reverse when I read in the News of last week the extracts from a paper by John L. Gihon, which appeared in the Philadelphia Photographer. Except the two first paragraphs, the whole of the extract is a verbatim piracy from my work, Instruction in Photography, commencing at the first line of the first chapter. This must have escaped notice, I am sure, or you would not have countenanced the insertion of the article. I am aware that there is no copyright in connection with America, but I had supposed that even a pirated edition would have borne the name of the author. Mr. Gihon, however, seems to think that even this slight advantage to myself should be dispensed with, and wishes to father the authorship on himself. This is not an English way of showing honesty.

"What the relations are between Mr. Gihon and Mr. Wilson (the editor of the journal in question) I am not aware, but I would suggest to the latter that it might, perhaps, be more pecuniarily profitable to him if he reprinted the book, without the expense of MS. from Mr. Gihon. I am, sir, yours faithfully, W. DE W. ABNEY."

[We need scarcely say that we regret exceedingly that Captain Abney's work should have been thus used without acknowledgment, the more so as we have always regarded Mr. Gihon as a respectable writer. Perhaps it is unnecessary to add, on behalf of the editor of our American contemporary and ourselves, that it is scarcely possible to be familiar with not only all the facts of photography, but of all that has been said on the subject by many excellent writers.— Ed.]

We very gladly give space to the above extract from the *Photographic News* of March 1st; first, because we have the highest respect for Captain Abney and his very valuable contributions to photographic lit-

erature; and second, because we deprecate the habit which seems general in some directions, of clipping from another source without acknowledgment. Moreover, we desire to exonerate Mr. Gihon from any intention whatever of doing otherwise than make proper acknowledgment of all that he uses.

In beginning his series of articles or "Scraps," he consulted with us as to the policy of adding the author's name in each case, and stated that in some instances he could not, because he had forgotten the source, or neglected to mark it in his scrapbook. We therefore advised him to place in the beginning a foot-note, which occurs in our January issue, as follows: "In the beginning, I beg to acknowledge my indebtedness to all known sources of photographic information for what I gather from them, without further credit. J. L. G." Perhaps Captain Abney did not see this, and if at any time Mr. Gihon sins again, we shall be glad to have our attention called to it, and make special acknowledgment. So much do we value Captain Abney's services in this direction that we have ordered a copy of his book from the publisher, and hope soon to receive it, and review it according to its merits; and from what we have read of his former works we believe the review will be one that we trust will help sell the book, and honor the author of it.-ED. P. P.

#### GERMAN CORRESPONDENCE.

Electrical Light—Laws against Photographic Cotton — Obernetter's Reversed Collodion Method—Chrysoidin — Gutekunst's Panorama of the Centennial—A Big Map of the Moon.

THE new year has not commenced very favorably for German photographers. England, who has but very little influence in political affairs, seems to have influenced our weather all the more. We have had lately several dense and continuous fogs, which, in comparing the intensity, closely resemble the London fog. This is, for our country, a very unusual phenomenon; it has spoiled the Christmas business entirely. The hopes for better spring weather have now also vanished. Under such un-

promising circumstances, it is quite natural that the question of the application of artificial light should be brought again before the public. Mr. Van der Weyde, of London, has recently opened his studio in which he makes portraits by use of electric light. In Vienna, Mr. Winter uses it for enlargements, and in Paris, the streets are illuminated with it. The same is produced by means of a magnet-electric machine, constructed by Mr. Simons, which requires a four-horse-power force. The American photographers may be glad not to be obliged to make use of such an expensive means of producing their light.

Niepce de St. Victor has tried, although without success, to make superfluous light latent. If science should succeed better in doing so, the Americans will have a chance of bottling their light and exporting it to our obscure Europe. I hope there will be no such duty to be paid here as Americans have to pay on the importation of European products. Fortunately our government has fixed very low rates of duty. Less favorable is the freight for collodion cotton. The new rules object to transporting it either by mail or railway. The consequence will be, that country photographers will be obliged to make their pyroxylin themselves, as they did twenty-five years ago.

The reason for taking this measure is to prevent any serious accident which might be caused by the spontaneous combustion of the cotton. Austria goes still further. Nitro-glycerin and common combustible cotton are allowed to be transported, and the harmless collodion cotton is excluded. At present nobody notices it. As for myself, I often had gun-cotton in my trunk which I transported many thousands of miles without meeting with any accident.

Messrs. Obernetter and Albert are continually making trials for perfecting the lichtdruck in natural colors, where it is required to work with various sensitive substances, as iodide of silver, bromide of silver, etc. For the usual work, it would therefore be necessary to have several collodions on hand. Obernetter, however, works differently. He has one collodion, which is neither iodized nor bromized, but simply contains nitrate of silver. He proceeds

in making a solution of 5 grammes of nitrate of silver in 2 cubic centimetres of warm water, adds a drop of nitric acid, and 250 cubic centimetres of alcohol, then 6 grammes of cotton, and 150 cubic centimetres of ether. After this mixture has settled or been filtered, it is fit for the various uses. If, for instance, a bromide silver plate is wanted, one simply collodionizes a plate which is afterwards dipped in a bromide-potassium bath of 1:15. If a bromoiodide silver plate shall be produced, the same plate has to be dipped in a mixture of iodide and bromide-silver bath; such plates are, on account of the adhering solutions, very slightly sensitive. It is therefore advisable to wash them with pure water, and expose, whether they are wet or dry. The bromide-silver plates have to be exposed immediately after they have been washed, and to be developed with an alkali developer; but I found that they are less sensitive in the wet state than when they are dry. They will be more sensitive when poured over with sensitive substances.

This way of working is by all means safer than the preparations of bromide-silver emulsion, when a little mistake can spoil the whole job. In working with iodide of silver the plates are but very slightly sensitive after having been dipped in the solution of iodide of potassium and having been washed. They will receive the sensitiveness of the usual wet plate after pouring over them the ordinary silver bath. Only a small quantity of bath is wanted, and the plates are exposed and developed as usual. I tried the method with the best success. The treatment with the silver bath is very easy. No greasy streaks, spots, pinholes, or other flaws will be noticed.

Obernetter applied this process for ordinary operations, and has made an excellent reproduction of a drawing in lines. In order to get a plate equally sensitive with our common silver plate, he recommends a bath as follows:

Iodide of Potassium, . 5 grammes. Bromide of Potassium, . 1 " Water, . . . . . 90 "

Portrait photographers, for whom a quick preparation is a very important point, will always prefer the wet-plate process. This, however, does not in the least alter the importance of Obernetter's method.

Lately has been introduced in our trade a yellow color called chrysoidin, recommended for the preparation of yellow window glass. This body has indeed the quality to color the negative varnish a deeper yellow-red. Glass plates coated with it appear darker orange than common yellow dark-room window glasses. This guided to the conclusion that this body might be used for the preparation of non-actinic glasses. My experiments proved, however, that a considerable quantity of violet light passes through it; even much more than through oil-silk.

I experimented on both bodies by means of a spectrum, and found that the violet light, which has the greatest effect on the bromo-iodide of silver, passes considerably through the chrysoidin varnish. For darkroom windows the varnish cannot be recommended, but it is excellent to coat thin negatives with.

Two things have recently produced such an effect here which you would call "mammoth." The one is Gutekunst's panorama of the Philadelphia Exhibition; the other is our moon.

The astronomer Schmidt has drawn a large map, consisting of 25 single pictures of 15 inches square, of our wonderful neighbor. The diameter of the moon on the map is six feet. Schmidt has worked at it for thirty years. Our government has bought the drawing for 42,000 marks. A. Bunhard has taken a photograph of this interesting work, and we hope that our government will consent to the publication of this interesting map, which is of great value to astronomy.

Very truly yours,

DR. H. VOGEL.

BERLIN.

The patent of Mr. J. W. Swan for the manufacture of carbon tissue having expired in England on the 28th of February, its life in this country is also ended. The right to manufacture carbon tissue, or to use the double transfer process of Mr. Swan, is now public property.

#### FRENCH CORRESPONDENCE.

March Meeting of the Photographic Society of France—Presentation by Mons. Derogy of a New Lens containing a Prism for Reversing Negatives for Carbon Work—Monsieurs Potok and Giroud's Presentation—Reclaimation, by Mons. Roger—Discussion on the Same—Presentation, by Prof. Stebbing, of his new Still for the Saving of Ether and Alcohol in Precipitating Collodion or Emulsions—Description of Apparatus and Notes on the Distillation of Ether and Alcohol—Notes on Emulsions; insuccess and the cure—Messrs. Dawson, Carey Lea, and Capt. Abney cited—Presentation of the Sciopticon.

THE Photographic Society of France held its March meeting on Friday evening last, the 1st inst., Mons. Peligot in the chair. The meeting was very well attended both by amateurs and the profession.

Mons. Derogy, the skilful optician, presented a new lens, or, I might rather say, an addition to a lens, whereby landscapes, reproductions, etc., can be taken on reversed negatives for the carbon process of printing. Many systems have been tried to obtain this object, one of which is the interposition of a prism between the object and the lens. This prism must naturally be large, and therefore expensive. Mons. Derogy has perfected this idea by employing the prism behind the diaphragm. This being placed there, and in a proper position, gives an image free from distortion. Placed in this manner it requires but a very small prism, which can be more easily fabricated than a large one, and costs but very little. The lens presented to the Society was of the same form as the ordinary lens, only at the back, instead of being open, it was closed, and at right angles with it a brass cone was soldered on to receive the rays coming from the prism. This brass cone is screwed on to the front board of the camera in the same manner as an ordinary lens; the image is now found to be reversed, that is to say, in a proper position for carbon printing. A negative was shown of a reproduction made by that instrument, of which the lines were very sharp and free from distortion.

Messrs. Potok and Giroud continued the presentation they made at the last meeting, and of which I spoke in my last communication to the Philadelphia Photographer. A piece of paper covered with a black substance was handed round to the members, after which it was washed in cold water, when the black on certain parts peeled off, remaining only on those parts forming the design. Here began a discussion between certain members as to its value; one in particular said that he had employed a similar process, which in fact was nothing more or less than Poitevin's process (the inventor and father of all processes having for the base bichromate of potash or others). This, said he, is simply to take a sheet of albumenized paper; float the back of it on a solution of bichromate, let it dry, and then expose it to light behind a photographic image. The light, in decomposing the bichromate of potash, isolates a part of the chromic acid, which swells the albumen; and if a roller impregnated with transfer ink be rubbed over it several times, the ink adheres firmly to those parts impressioned by the light, and not to the others; for when the paper is put into cold water all the ink will fall from those parts which had not received the rays of light, and leave the design as desired. This can now be transferred to lithographic stone by the ordinary process employed in the lithographic trade. Mons. Roger, who made these remarks, said he did so to warn the members against a secret process, which, in his opinion, was no other than the one he had been working, with only this exception, that the paper had been inked before insolation instead of after having been exposed to light. Another member gave his opinion that the new process of Mons. Gobert was much superior (of this process I gave the description in one of my former letters).

An influential member of the Society had requested me to make a presentation and give a description of my new apparatus for the making of emulsions. I did so last Friday evening; the reception which it met with from the Society encourages me to bring it before the readers of the *Philadcl-phia Photographer*, if peradventure they can make something good out of it. I must

in justice say that the presentation was made to the Society of an apparatus for the making of emulsions; but for my readers I must say that not only is this apparatus useful for emulsions, but it can also be employed for every service required of a still, such as making distilled water, distilling alcohol and ether, precipitating cotton for emulsion work, etc.

I will begin by giving a description of the apparatus as arranged for the making of distilled water. I need not dwell upon the value of this product in photography, and how very often rain and water from the waste steam-pipe is palmed off upon the photographer for the genuine article. The revolutions which occur in the nitrate bath might be often traced to this very cause. I shall consider myself handsomely repaid if I can in my humble way prevent one of my readers from being subject to these annoyances, by giving him the means to construct an apparatus which I have employed with success for many months.

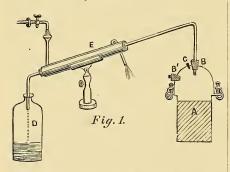


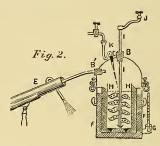
Diagram I represents said apparatus as fitted up to distil water. A represents a copper boiler on which is firmly screwed by means of clamping screws, a dome made of the same metal. BB' two funnelshaped holes in which are inserted two corks or india-rubber plugs. C a smaller hole stopped with a cork, the use of which will be seen hereafter.

To set the apparatus at work, fill up the boiler with the exact quantity of water which the large bottle D can hold. Fit into plug B the condensing apparatus E; stop up the holes in the plugs B' and C with corks, and light the fire or gas under the boiler; by looking at the bottle D, it

can easily be seen how much the water has diminished in the boiler, which can easily be refilled if required, by taking out the cork C, and putting a funnel in its place.

Water containing alcohol, the product obtained in precipitating emulsions or collodion, must be distilled in this manner also; but on no account must water containing a mixture of alcohol and ether be so distilled; we shall see how hereafter.

I will now give a description of the apparatus as arranged in order to precipitate collodion or emulsions.



As may be seen by Diagram II, a slight addition is made to the apparatus. 1. G is a copper boiler, having handles on the sides, and near the bottom an opening in which to insert a cork bearing a thermometer, G. This boiler is filled about a quarter full of water, and when the still is introduced it displaces the water and forces it to rise to the level indicated. A second addition is that of a porcelain pan or pail, H, which is placed in the middle of the still in such a manner that a certain quantity of water may separate it from the still. A centre point is fixed in the bottom of this pan, in which rotates the lower end of a shaft bearing a number of propellers or beaters, I, in wrought silver. On the top of the shaft is fixed a handle, J, or any other mechanical contrivance by which the beaters can be made to rotate. A funnel and glass tube "tube de surete," K, in a cork, is fixed into the hole, C, in the dome to enable the collodion to be poured slowly into the apparatus. The condensing apparatus E, as represented in Diagram I, is this time passed through the lower plug B'.

In order to set the apparatus at work, the porcelain pan is nearly filled with distilled water, in fact to the level of the beaters,

and is then fixed in the middle of the still, which is then firmly closed by means of the clamping screws.

The apparatus now being ready for work, is placed upon a gas or other stove, and as soon as the outside thermometer marks 150° Fahrenheit, which supposes the heat of the water in the interior of the pan sufficiently hot to evaporate ether, the fire is extinguished, and the collodion or prepared emulsion is gradually poured into the interior of the apparatus by means of the glass tube and funnel K. In coming into contact with the hot distilled water, a great dilatation takes place by the rapid evaporation of the ether; at the same moment the precipitated cotton is drawn violently down to the bottom of the water by the movement of the screw or beaters, and is there kept in constant agitation. The ether makes its way out of the still through the glass tube at B', is condensed in the cooling apparatus, and is collected in a bottle about a quarter full of distilled water, and left there until a certain quantity is collected, and above all, to extricate any alcohol which has made its way out of the still in company with the ether. As for myself, after having shaken it up once or twice, in decanting it with care, I find it sufficiently pure to make normal collodion. Naturally, if a great purity be required, it must be washed several times in taking care to diminish the quantity of water each time; a tenth of the volume is sufficient for the last wash. The ether is then put into a bottle containing chloride of calcium, and left there for several hours, or even days, and then distilled, in the same apparatus as Diagram II, but without the beaters.

Let us return to the precipitated cotton; in an hour the water is sufficiently cool to dip the hands into it, therefore the dome is detached, and the porcelain pan containing the precipitated cotton with the alcoholized water taken out; this is poured through a fine sieve which retains the cotton; the water is set aside to distil the alcohol from it, when sufficient is obtained to pay the expense. The product, pure cotton, or cotton containing bromide of silver, is then washed in several changes of distilled water (and finally I give it a last

wash in alcohol), and then it is set aside in enamelled iron trays, to dry spontaneously.

The dry product, whether it be precipitated cotton or sensitized cotton obtained by this process, has a honeycombed appearance, dissolves readily in the solvents, and gives a very pure solution.

Whether I am indebted to this apparatus or extreme cleanliness for the complete absence of those spots on emulsion plates, I know not; the fact is, I have never been troubled with them in any way. I am of the opinion expressed by Mr. George Dawson, who believes "they are mainly due to arrant carelessness and slovenliness." It is surprising how few amateurs can make a good emulsion. I have seen such curdywhey products that would dishearten the most energetic. Happily, in showing them the excellent hint of our worthy friend, Mr. Carey Lea, that the "main point is not to put too much in the bottle," that shoal can be avoided. Another which is more difficult, and which is, I think, inherent to precipitated emulsions, is the difficulty in intensifying the negative. Thanks to Captain Abney, intensification can be obtained. I will quote his formula.

"Prepare," says he, "the following solutions:

" No. 1.

"Dried Albumen, . . . . . . . . . . . 25 grains.

Water, . . . . . . . 1 ounce.

Liquor Ammonia, . . . ½ drachm.

" No. 2.

"Ordinary Bitter Beer, . 1 ounce.

"No. 3.

"Ordinary Bitter Beer, . 1 ounce.
Pyro Acid, . . . 2 grains.

"When the plate is coated with emulsion, and whilst still moist, put it into a tray containing distilled water, and allow it to remain till all greasiness has disappeared. Then flow over its surface equal parts of Nos. 1 and 2 for a minute. Wash thoroughly, and finally flow over the plate some of No. 3; set the plate up to dry, as it is finished."

To return to the Society: an experimental demonstration of the sciopticon lamp was given by Messrs. Charcounet and

Laverne, with the adaptation they had made to that apparatus, by which opaque objects could be clearly seen and enlarged for photographic purposes. I need not add that this lamp obtained the approbation of the Society, as well by the power of its light, as the ingenuity and simplicity of its construction.

Prof. E. Stebbing.

27 Rue des Apennins, Paris, March 6th, 1878.

The Exhibition advances rapidly towards its completion, and it is quite false that it will be postponed on account of the rumors of war in Europe.

## USEFUL THINGS WORTH KNOWING.

Stark's extensive sulphuric acid works in Bohemia, which produce the so-called Nordhausen, or fuming sulphuric acid, on a very large scale from aluminous slate, have lately commenced to put the pure anhydrous solid sulphuric acid on the market. It is put up in tightly-soldered tin (tinned iron) boxes, which were found to answer best, because at ordinary temperature sulphuric anhydride is without action upon metals, and particularly upon tin. form of acid is very useful, and its transportation by far less risky than when shipped in a liquid form. The constantly growing production of artificial alizarin has been chiefly the cause of this innovation, it being well known not only that large quantities of fuming sulphuric acid are required for its preparation, but also that the yield and quality of the product depend upon the degree of concentration of the oxidizing agents.—Pharm. Centralb. fr. d. Ind. Zeit., 1877, 373.

ROSANILIN is a strong, colorless base, containing  $C_{20}H_{19}N_3$ , and capable of forming salts. The hydrochlorate of rosanilin,  $C_{20}H_{19}N_3HCl$ , is known as fuchsine.

Rosalić Acid, as it appears in commerce, is prepared from phenol by means of oxalic and sulphuric acids; is a resinous mass with green metallic lustre, forms a red powder, and dyes silk and wool yellowish-red. Its composition is  $\rm C_{20}H_{16}O_3$ .

ORSEILLE is archil, the well-known coloring matter of many lichens.

To Renew Manuscripts.—Take a hairpencil and wash the part that has been effaced with a solution of prussiate of potash in water, and the writing will again appear, if the paper has not been destroyed.

CHESTNUT-FLOUR GLUE.—Chestnuts deprived of their brown skin are crushed between rollers to a coarse mass, the latter rubbed through a fine wire sieve, placed into water, and the fine deposit of starch separated and dried. This yields a very handsome, transparent, and liquid glue of great tenacity.

LIQUID GLUE (C. D. M. W., Columbus, Ohio).—A very strong glue may be made by dissolving four ounces of glue in sixteen ounces of strong acetic acid by the aid of heat. It is semi-solid at ordinary temperatures, but needs only to be warmed, by placing the vessel containing it into hot water, to be ready for use. A most excellent form is also Dumoulin's Liquid and Unalterable Glue. This is made as follows: Dissolve eight ounces of best glue in onehalf pint of water in a wide-mouthed bottle, by heating the bottle in a water-bath; then add slowly two and a half ounces of nitric acid (spec. gr. 1330), stirring constantly. Effervescence takes place under escape of nitrous acid gas. When all the acid has been added, the liquid is allowed to cool. Keep it well corked, and it will be ready for use at any moment. It does not gelatinize, nor putrify or ferment. It is applicable to many domestic uses, such as mending china, wood, etc.

IMPROVEMENT IN FILTER PAPERS.—Mr. T. Ross, of Cape Town, has made an important improvement in filter papers. One side of each sheet has affixed to it a sort of muslin with large meshes, which serves not only to prevent the paper from adhering too closely to the sides of the funnel, but also renders it stronger and better able to withstand the weight of the superincumbent fluid.

AMERICAN GUM ARABIC.—The mesquite gum of Western Texas is almost identical with gum arabic. During the past year it has become an article of export, some twelve thousand pounds having been gathered in Bexar County, and as much more between that and the coast. This gum exudes from the stem and branches of the mesquite, a mimosa, several species of which grow in Texas, New Mexico, and Arizona.

PRODUCTION OF OXYGEN BY A NEW METHOD.—According to a Belgian photographic journal, Herr Zinns has discovered a new way of preparing oxygen in large quantities. Baric peroxide and potassic permanganate are placed in water and allowed to act upon one another, the result being that two hundred cubic centimetres of oxygen are evolved from every gramme of the mixed substances.

To Test Soaps.—Dissolve twenty parts in water, and mix with five parts of diluted sulphuric acid. The fat rises to the top, and the mineral impurities fall to the bottom. In this manner, says a scientific cotemporary, the most flagrant adulterations can be detected.

DEXTRIN MUCILAGE.—As an adhesive, dextrin is superior to gum arabic in many instances; it is used on the backs of revenue stamps, and to fasten envelopes. As a means of affixing labels to glass it is excellent.

Dextrin,			2 ounces.
Acetic Acid	ı,		1 ounce.
Water,			5 ounces.
Alcohol,			1 ounce.

The dextrin should be dissolved in the water and acid by means of a water-bath, and the alcohol added afterwards.

Another formula gives the following proportions:

Dextrin,			2 ounces.
Acetic Ac	id,		$\frac{1}{2}$ ounce.
Water,			4½ ounces.
Alcohol,			$\frac{1}{2}$ ounce.

Mix the dextrin, acetic acid, and water, stirring until they are thoroughly mixed; then add the alcohol.

HYDROBROMIC ACID—which is really hydrogen bromide, or bromide of hydrogen—is a gaseous substance, containing 98.76 per cent. of bromine; but the solution of the gas in water, which constitutes the liquid

commonly known as hydrobromic acid, may contain the gas in any proportion, or be of any strength.

POTASSIUM BROMIDE contains 67.22 per cent. of bromine; sodium bromide, 71.4 per cent.;\* and ammonium bromide, 81.6 per cent.; and therefore their doses, to be equivalent in bromine, are nearly in the ratio of 9, 8, and 7½.

Solubility of Sugar in Water.—M. H. Courtonne has read before the Academie des Sciences a somewhat important paper on this subject. The results, which seem to be beyond dispute, are as follows: The solubility of sugar in water at a temperature of 12.5° C. (54.5° F.) is 198.6 in 100. At a temperature of 45° C. (113° F.) it is 245 in 100. In other words, 100 parts by weight of a saturated solution of sugar at 12.5° C. (54.5° F.) contain 66.5 parts by weight of sugar, and at a temperature of 45° C. (113° F.) contain 71 parts of sugar.

Troy and Avoirdupois Weight.—A lengthy discussion has recently been published in the *Pharmaceutical Journal and Transactions*, in regard to the signification of characters in common use. It has, however, been practically settled by the statement of Professor Redwood, who has explained that the sign ib should always represent the Troy pound; that lb. represents the avoirdupois pound. 3 stands for the Troy ounce (480 grains), and oz. for the avoirdupois ounce (437½ grains).

Dr. F. M. HILDEBRANDT, of Germany, has just returned from an expedition in Central Africa. On one occasion he routed a brave army of several hundred natives with the dread aid of a photographic camera. On another occasion he adopted a novel, ingenious, and decidedly successful method of securing a collection of the organic products of a district. The tribe of Hataitas regarded him as a magician, and forced him

<sup>\*</sup> The sodium bromide of the market seems to be neither the anhydrous salt containing 77.7 per cent of bromine, nor that with four equivalents of water, containing 57.55 per cent., but a mixture of the two, containing about nine per cent. of water, and therefore containing about 71.4 per cent. of bromine, as above stated.

to pronounce incantations on their unfruitful fields. That his charms might be effectual he made the natives bring him specimens of all the animals and plants to be found in the neighborhood, which were shortly packed away in his collections.

TINCTURE STOPPERS. — The unpleasant cementing of stoppers can be entirely prevented by rubbing them with a piece of paraffin, and giving them a turn in the neck of the bottle, so as to distribute a thin coating of paraffin all over. Renew two or three times a year.—Druggist and Chemist.

RAPID FILTRATION. -A writer in the Journal of Pharmacy suggests the following method for the rapid filtration of small volumes of liquid: The rings of a retort stand are bound with cloth or muslin until the central aperture is of just sufficient size to admit a glass chimney, such as is used for the ordinary student's lamp, which has an enlargement at the base, serving as a shoulder. The tube now being placed in the holder, the lower extremity is covered with a piece of filter paper in the following manner: A circular or square piece of muslin is covered by a similar piece of filter paper, and the two bound firmly over the lower extremity of the tube with the paper inwards, and secured by means of a rubber band. The tube, being now filled with liquid, it will filter slowly, and the filtration will be hastened by fitting a good velvet cork in the upper extremity of the tube, piercing it with a metal tube, and attaching to this an ordinary rubber pipe connected with the bulb, such as are used in the small atomizers or syringes. By compressing the bulb, air is forced into the tube, and the increased pressure rapidly hastens the flow of filtrate. By this means from four to eight ounces of liquid can be filtered in a very few minutes.

WATERPROOF PACKING PAPER.—Packing paper may be made water-tight by dissolving 1.82 pound of white soap in one quart of water, and dissolving in another quart 1.82 ounce (apothecaries' weight) and 5.5 ounces of glue. The two solutions are to be mixed and warmed, the paper soaked in the mixture, and passed between rollers or hung up to dry.

A NEW WASHING FLUID. - Beat one kilogramme of soap, with a little water, into a paste, warm it moderately, and incorporate it by thorough stirring into fortyfive litres of water at a temperature of about 30° C. (86° F.), to which one tablespoonful of oil of turpentine and two tablespoonfuls of ammonia have been added. The articles to be washed are to be soaked in this mixture for two hours, and then washed as usual. The fluid can be rewarmed and used a second time by adding more turpentine and ammonia. The process is said to be time-, labor-, and money-saving, much less soap and rubbing being needed, and the wear of the clothes is greatly diminished. Good for photographers' towels.

INK THAT CANNOT BE ERASED.—An ink that cannot be erased, even with acids, is obtained by the following receipt: To good gall ink add a strong solution of fine soluble Prussian blue in distilled water. This addition makes the ink, which was previously proof against alkalies, equally proof against acids, and forms a writing fluid which cannot be erased without destruction of the paper. The ink writes greenish-blue, but afterwards turns black.

To Bronze Iron Articles.—According to a process by M. P. Hess, this is done by the articles being heated in the air after being coated with linseed oil. Objects which cannot be exposed to a high temperature may be steeped in a slightly acid solution of ferric chloride, plunged in hot water, and when dry rubbed with linseed oil or wax. To preserve iron from rust, the author recommends sulphide of copper. He steeps the iron for a few minutes in a solution of sulphate of copper, and then transfers it into a solution of hyposulphite of soda, acidulated with hydrochloric acid. The result is a blue-black coating, not affected by air or water.

#### SOCIETY GOSSIP.

PHOTOGRAPHIC Society of Phila-Delphia.—The regular semi-monthly meeting of the Society was held Thursday evening, February 21st, 1878, Vice-President Mr. Joseph W. Bates in the chair. The minutes of the last meeting were read and approved.

Mr. McCollin exhibited a new form of manipulator constructed of wire, and intended for holding plates when developing.

Mr. Browne raised a question regarding the possibility of making a negative or other photograph of a view illuminated by a flash of lightning. This matter was discussed at some length, no one seeming to think such a feat possible.

Mr. McCollin laid upon the table what was thought to be the first photograph ever made in America by the dynamo-electric light. This portrait, by Messrs. Broadbent & Taylor, was thought very successful.

It was resolved, on motion by Mr. Browne, that the members be requested to bring lantern slides to the next meeting, from which a selection could be made for another exhibition

Mr. Sartain exhibited the apparatus used by Dr. Goddard and Mr. Cornelius in their early photographic experiments. This collection was examined with much interest by the members, and a vote of thanks tendered to Mr. Sartain.

Adjourned.

Another stated meeting of the Society was held Thursday evening, March 7th, 1878, the President Mr. Ellerslie Walllace, Jr., in the chair.

The minutes of the last meeting were read and approved.

On behalf of the Committee on Excursions, Mr. Barrington proposed the following route for the spring trip: The party to leave Philadelphia Wednesday, May 15th or 22d, and go by rail to Nanticoke, and there take the canal boat on Thursday, A.M., for Northumberland, which will consume about three days. After lying over Sunday at Northumberland, start for Harrisburg on Monday, arriving there about Wednesday, and thence to Philadelphia by rail. proposed route was favorably received by the members, and on motion the Committee was requested to make a detailed report at the first meeting in April. A short trip was also discussed, and the Committee was asked to include this in their report.

On motion by Mr. Bates, the Room Committee was authorized to select a room more

suitable for the Society, in the vicinity of Broad and Chestnut Streets.

Mr. Browne suggested that an exhibition of slides, selected from the collections of the members, should be arranged, and moved that the President appoint a committee for the purpose. The motion being carried, the Chair appointed Messrs. Browne, Dixon, and McCollin, the Committee.

Mr. Bell exhibited an album containing a large number of successful copies of oil paintings, made by himself.

The meeting was now adjourned, to enable the Society to examine the slides which had been brought by a number of the members for exhibition.

D. Anson Partridge,
Secretary.

Boston Photographic Society,—The regular monthly meeting of the Society, with Vice-President Hardy in the chair, was held at J. W. Black's studio, March 1st. 1878.

The Committee on Resolutions reported as follows:

Mr. President: Your Committee, to whom was assigned the preparation of some suitable expression of the Society's regard for Brother T. R. Burnham, recently removed from our city to Portland, Maine, beg leave to submit the following report.

Resolved, That in the fifteen years that Brother Burnham has been associated with us in the practice of photography, and during his connection with the Boston Photographic Association, we have found a persevering pioneer in the art; not only skilful in the work of improvement, but ready and willing at all times to impart the result of his study and experiments to others of the craft; and be it further

Resolved, That while regretting the loss which the Association sustains in the absence from its monthly meetings of one so active and useful in its ranks, we rejoice that he still lives to pursue his vocation in another field, whither he will be attended by our best wishes for that success and prosperity which skill and industry ought to command.

Resolved, That this expression of our regard for Brother Burnham be entered upon

the Society records, and a copy of the same be forwarded to his address.

> Fred. C. Low, Albert S. Southworth, C. F. Richardson,

> > Committee.

The following officers for the ensuing year were then elected: President, G. H. Loomis; Vice-President, E. F. Ritz; Secretary, F. C. Low; Treasurer, E. F. Smith.

Messrs. J. W. Black, A. N. Hardy, and Frank Rowell were elected the Executive Committee, and Messrs. Loomis and Ritz ex-officio members of the same.

The six prize photographs, by G. M. Elton, of Palmyra, New York, were exhibited. These pictures were, as they deserved to be, The printing and very highly praised. toning showed the work of an expert; the backgrounds and accessories are most ap-The peculiar atmospheric or propriate. stereoscopic appearance of the prints was due to the negatives having been made with a 4-4 No. 3 Voigtlander & Son lens; and, judging by the prints, the negatives must be superb. One great feature noticeable was the light and shade effects, which were truthful without exaggeration. The set would be a valuable addition to any collec-ERNEST F. RITZ, tion.

Secretary.

#### OUR PICTURE.

GREEABLE to promise, we present our readers this month with the gold medal prize picture, from negatives sent by Mr. G. M. Elton, of Palmyra, N. Y. Elsewhere are a series of criticisms from some of the competitors which speak somewhat of this picture, to which we refer. In making the award as they did, the judges were not only influenced by the technical work of Mr. Elton's negatives, and the artistic arranging and posing of the figure, but also by the fact that the style was one rather different from any of the rest, and one which seemed attractive and beautiful as well as tasteful. It has been christened by Mr. Elton as the "panel style." name seems a very appropriate one.

Its pecularities will be apparent to all who study it, and we confess rather to a

liking for it. It is not every common photographer who can produce such work as this, although it may to him seem very simple. The difficulties of it will be understood more fully when the effort is made, and it will not do any harm to have the effort made in every direction.

Mr. Elton's ideas as to the popularity of this new style are given below. Photography has reached the greatest technical height possible, perhaps, and it has made great progress in the direction of art principles, and now the lead must be taken in the way of new styles that will prove attractive, and hit the popular taste. It seems to us there is a fair chance for the "panel style" in this latter direction, and we place before our readers very gladly a good example of it for their study and help.

Mr. Elton has certainly made great progress since November, 1874, when we published a picture by him of a little girl. At the same time we gave his formula for collodion and developer, which we append hereunto.

#### Collopion.

Ether an	d Alcohol, .	equal parts	3.
Cotton,		4 to 5 grains to	ounce
Iodide of	Ammonium,	4 "	44
Bromide	of Cadmium,	$1\frac{1}{2}$ grain	**
Bromide	of Potassium,	1 "	••
Iodide of	Lithium, .	2 grains	46
Silver Ba	th, 40 grains s	trong and acid.	

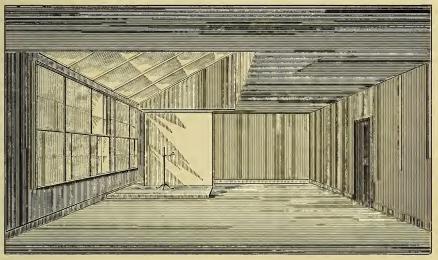
#### DEVELOPER.

Water,			16 ounces
Iron, .			1 ounce.
Acid			1 "

He says in his letter to us: "Too much credit cannot be given to Mr. Seavey for the tasteful background he furnished me, nor to the celebrated Voigtlander lens with which the pictures were made. This particular lens has been in this gallery eighteen years; but fine lenses, collodion, developer, etc., any mechanic can use; they are merely tools with which good or bad work can be made, according as they are handled. In painting, it is not the brand of colors, or the peculiar brushes which make the beautiful picture, but the way they are used. The great Turner, although he used inferior colors, made pictures which have immortalized him." Mr. Elton has sent us a

drawing of his skylight, of which we give a plain sketch below. It will be observed that it is supplied with a screen, which he says, slides into a groove of its own. In the summer-time, over the head of the subject, he uses a curtain made of tissue paper to keep out the sun. His preference is for plenty of light, which he endeavors to manage to get the best effects. among my customers, and parties come here from neighboring cities and towns to procure them.

"A week or so ago a gentleman from Auburn came into my gallery, and seeing one of these panels, declared he had seen nothing in Paris or Berlin that he considered equally as pretty. He immediately had a negative made in the same style. I



Noticing among the criticisms that appear elsewhere on Mr. Elton's picture, that some of the critics are a little disposed to find fault because of the size of the figure, etc., we asked Mr. Elton to give us his experience with his "panel" pictures, feeling that they were not either understood or fully appreciated, as they seem to have been by the judges. We received the following reply from him.

"Yours of the 14th came duly to hand, and in answer you desired me to say how my style of picture takes with my customers, and how it is regarded. I send inclosed a letter from Benjamin French, of Boston, also one from Charles W. Stevens, of Chicago, in which they give their opinion on the subject.

"Mr. Kent, of Rochester, calls it the prettiest style he has seen in a long time, and is now making them himself, except that he mounts them on the bouloir card. This new style is considered the thing

find that it helps my business immensely, for not only does the novelty of the style draw in customers from the surrounding towns, but also my regular customers, who have good negatives in my gallery, think that they must have new ones made in this narrow style.

"Now the gentlemen who have criticized the panel style must consider that some judgment is necessary in offering it to their customers. It would not suit an old lady nor a girl with an awkward figure; but a lady with a handsome dress, or a fine figure, or a graceful young miss, nothing will take her eye as soon as these panels.

"Mr. Seavey, of New York, was so pleased with them, that he wrote to me, as you saw by the letter I sent you, to procure negatives in that style for Ed. Liesegang, of Dusseldorf; and considering the chance for a choice that Mr. Seavey has, and also his well-known artistic taste, I think this a great compliment to my work, and to this new style.

"I send you a few prints of the negatives I sent to Germany; by them you will see that I vary the size of the opening in printing."

This tells its own story, and we trust and believe that the "panel" style will grow more and more into favor as it is examined. We quote from the letters of Messrs. French and Stevens, to which Mr. Elton alludes above, as follows: The former says, "I must say they are the best pictures from six negatives I ever saw; they are gems of art, and you deserve great credit for such work; I take pleasure in showing it. I have always recommended the Voigtlander & Son's lens, and still believe it is without an equal." Mr. Stevens says: "Your work is finevery; and as it lies on the desk for the inspection of our city photographers, elicits the warmest praise. We trust your pecuniary reward is fully up to your desires, and all that work of such superior excellence demands."

The prints were made at our own rooms, on Gennert's Dresden Double Brilliant Paper.

We now leave the picture and the subject with our readers for their study, and trust it may be of great service to them. Our object in offering these prizes is to obtain examples for the common good. Our success has been not great this time, but still of considerable degree, and we hope the fruits thereof will be good.

### PHOTOGRAPHIC NEWS.

REMARKABLE progress is making in the photo-chromic process of Mr. Leon Vidal. A very beautiful specimen accompanied the last issue of the Photographisches Correspondenz. The results resemble very much chromo-lithographs, but are infinitely more delicate and beautiful, because they really possess all of the merits of the finest original, which is not always the case when the drawing must be made on stone. Mr. Vidal's method of working is briefly about as follows: As many negatives are taken as there are colors in the subject to be reproduced. By means of a peculiar varnish, every part except that which is required to be a slight color, is stopped out from each negative, so be the color green, neutral, red

or yellow, it alone is represented by the negatives. From these negatives lichtdruck plates are now prepared, and as each plate is enabled to print its own special color with all the delicate gradations of tone, very charming and natural effects are obtained. The picture which is being printed receives an impression in turn from each of these surfaces, and when it has passed the last of them, every portion of the subject will have been impressed. We believe there is much to hope for in this direction, and congratulate Mr. Vidal on his measure of success so far.

OUR friends on the other side of the water are discussing the great grievance which comes upon them in the matter of objections made by sitters to their pictures. objections are said to come mostly from the fair sex, and a correspondent in the British Journal, speculating somewhat upon the cause, says: "For some time past the great tendency of the ladies' attire has been to simplicity, even to severity, as regards decorative treatment. The more usual dress of a lady now is one of very plain make, with little or no ornamental attachments in the body, and without drapery about the arms, to form full folds, to break up monotonous patches, while the adornments often made use of, of very dense masses of lace, form conspicuous parts at the neck and wrists. Add to this that the hair is commonly treated as though the photographer were a phrenologist, and desired to make an investigation of the sitters' bumps with the least amount of labor; the beautiful tresses being brushed tight and plain, and the head showing in the print a seven-eighth view of the face, an exact contour of the skull. Sitters who have been taken on previous occasions with a moderate amount of ornamentation, by which term we are by no means to be understood as alluding to jewelry, are astonished that the photographer has taken them so badly."

This, we are assured, is the cause of great evil, and we hope that it may be of some use to call attention to it, and thus have addressed the photographic public. We think if photographers would assert themselves a little more, and provide a few

pieces of drapery, laces, etc., which will make up well in a picture, and insist upon their use at proper times, that it would be a good plan.

Monsieur Darlot, the eminent optician, of Paris, has manufactured recently what he calls a new rapid hemispheric lens for portraits and landscapes, which, having a much greater depth of focus, replace the old six-inch lenses. The tubes, by a revolving motion, cause the anterior and posterior lenses to approach each other when the operator wishes to obtain a bust, and separate them when a full-length portrait is to be produced.

An enterprising photographer near Paris, to attract attention, has placed in his glass case exposed outside his place of business, a model portrait carte of a gentleman decapitated, and suspended from one of his hands by the hair of his head is seen what should be the seat of his intelligence, his face divine. No fewer than six hundred persons have had the questionable taste to have their portraits taken after this model; a series of changes being wrought, such as the husband holding the head of his better half, and the better half shaking with evident delight the head of her lord and master. The method of securing these beautiful things was practiced considerably some twelve years ago in this country, the results of which were known as the double picture.

A CORRESPONDENT in an English journal says: "I know of no other profession that taxes temper and fortitude more than photography, especially the out-door work, in which the difficulties increase tenfold. If, by chance, you go to some uncivilized part of the country to take a group or view, and cannot conveniently erect your tent in an out-of-the-way corner, but are obliged to be content with some place where you are not directly in the way of everybody, as some people are not backward in upsetting the lot if you do not keep your eyes open, etc." That is probably because our friend has never been in any other business; if he has, he should have learned that there are not only tricks in all trades, but trials likewise; and that we should expect trials and trouble in everything which pertains to work. We cannot draw a breath without making an effort, and we have no right to expect to make photographs without some drawbacks. Once we accept this proposition, we will find things so much easier, at least we will have less of disappointment.

At the February meeting of the Pharmaceutical Society, Prof. Maisch stated that he was experimenting on bromide of iodine, a substance which has long been in use among photographers, in the daguerreotype process for rendering the plates more sensitive, but appears to be likewise used, to some extent, for medicinal purposes. He describes it as exceedingly caustic, similar to bromine, and as evidently unfit for internal use in the concentrated state, or in large doses. Recently, through a typographical error in a medical journal, it had been directed instead of potassium bromide, in a prescription for epilepsy; the error had been promptly corrected, but it seemed proper to direct attention to the caustic nature of the compound.

Mr. Doliber spoke of an error which occurred in printing Dr. Brown-Sequard's prescription for epilepsy in the Boston Medical and Surgical Journal, in an article written by Dr. Ayer. The second article in the prescription was "iodidi bromidi," and should have been potassii bromidi. The error was corrected in small type on the bottom of the last page of a subsequent number, but probably a great many had not seen it, as he had since received many orders for bromide of iodine.

Here is the correct formula:

The Brown-Sequard Treatment in Epilepsy. R.

Full dose, one and a half drachms before each meal, and three drachms at bedtime.

DR. Heid's Gun-cotton. - Since the

transportation of gun-cotton has caused so many difficulties in Austria, Dr. Heid's product has gained more and more attention. A competition with other cottons has proved that it is equal to the best kind, and that it answers to every purpose required of it. The fibre is more fast, white, and easily soluble in ether without leaving any re-Collodion made of it is pretty liquid. Silvered plates were distinguished by their great uniformity, without reaching, however, in this regard, the quality of pyroxylin-collodion. The film is strong. The cotton is not fit for the dry-plate process, and must be recommended all the more for wet plates.—Correspondence.

BLISTERS IN ALBUMEN PAPER.—Much has been written about this subject, but very little about the cause of their formation. Anselm Schmitz thinks now that in an alkali toning-bath containing carbonate of soda, the liquid penetrates sooner through the paper than through the albumen film, and forms carbonic acid between paper and albumen. If, now, all the different baths were warm, the gas would escape the same way. If the fixing-bath is not warmed, it will always be some degrees colder than the others, and the result will be that the glue thickens, and consequently prevents the acid from getting out. The fact is, that only certain double albumenized papers form blisters. A very alkaline toning-bath, and a fresh fixing-bath will produce blisters the size of a dollar. The most simple remedy is therefore to warm every bath after the toning process.—Archiv.

### THOUGHTS FROM THE ALMANACS.

No. 1.

THE English year-books come to us laden with an upper land with an unusual amount of good things this year, and although we offer the British Almanac for only forty cents, thus enabling everybody to enjoy its advantages and good things, still there may be many of our readers who may not see it, and for their benefit we make some extracts from it which may be of service to them.

The Fading of Transparent Positives .- "I

should give special attention to the following points in making transparencies for the window: Let the exposure be barely sufficient to impress the necessary detail, followed by a slow development with a rather weak solution. In the case of wet plates, use a ripe, full-bodied collodion that will stand well under the toning-bath, if this be required; or, if dry plates be preferred, use an albumen preservative, and in any case use only cyanide of potassium for fixing. I have never seen cyanide act injuriously on an albumen film if kept at a proper strength. Finally, let the plate be well washed and coated with a good, hard varnish, and, if possible, hang in a position where it will be shielded from the direct rays of the sun."-Ellerslie Wallace, Jr., page 68.

Weak vs. Strong Developers.—" My late experience is that a strong developer is a mistake for interiors and instantaneous work. It produces fog, dirty plates, and flat pictures. I find, also, that the ammonia sulphate of iron is far preferable to the protosulphate, and the formulæ I now adopt are, for interiors and rapid work:

"Ammonia Sulphate of Iron, . 30 grains. Acetic Acid, . . . . 10 drops. Alcohol, . . quant. suff. Water, . 1 ounce.

"For other work:

"Ammonia Sulphate of Iron, . 20 grains. Acetic Acid, . . . . 18 drops. Alcohol, . . . . . quant suff. Water, . . . . . 1 ounce.

"Another advantage with the ammonia sulphate is that it remains unchanged in action and appearance very much longer than the protosulphate. The development may extend over a long period, and with the occasional addition of a drop of silver solution the intensification is more harmonious."-Frederick York, page 70.

(To be continued.)

A Dodge.-Mr. W. L. Shoemaker, who is the well-known assistant of Mr. Albert Moore, the prince of solar printers in this city, sends us the following: "Have you ever tried to get rid of the greasy surface of an old ferrotype before copying? Scratches and finger-marks instantly disappear by pouring over a coating of thick albumen. Copy wet or dry."

## "LIGHTNING NEGATIVE PROCESS."

In answer to inquiries already made, and in anticipation of those which may follow, respecting the so-called "Lightning Negative Process," now offered to the photographers of America for the easy sum of \$20.00, and the privilege of buying the ingredients from one house only, we beg to say that we believe too many of the fraternity have already been victimized by "process mongers" to make it necessary for us to do more than to caution them against tumbling to any such proposition as is made by the gentlemen managing the sale of the "process."

We are quite familiar with the contents of all the German, French, and Belgian photographic magazines, and so are our esteemed German and French correspondents, and yet from none of them do we hear anything of the "furore" about this process. True, a letter is published purporting to come from our old friend, Mr. Ch. Reutlinger, of Paris, but he does not say one word about the "lightning" capabilities of the process. True, it is pronounced that all buyers of "permits" are to have "seventeen years" indulgence in the privilege of buying materials from certain parties, but it does not say that the said parties will surely be in business for the next seventeen years. Neither must it be supposed that this process is patented, because the "permits" are given for the term of "seventeen years"—the life term of an American patent—for it is not.

Neither is it wise to believe that this "process" will be kept a "secret" long after June 1st, 1878, if more than a dozen buy it, for no contract such as it is proposed to exact will be legal, and no one can enforce it in court of law. Those who wait will possibly get it for nothing, as has been the case with secret processes heretofore.

Mr. Scottellari's process for using purple light and other things purple has not been proven a success in Germany and France, and we believe that all kindred processes are equally impracticable. We shall test this one soon.

We say thus much because our readers shall not again accuse us of being slow to apprise them of any attempt to take their money from them without a full and worthy equivalent in return, and the right to use it as they please and buy their materials where they prefer.

# MAGIC LANTERN

A MONTHLY MAGAZINE,

DEVOTED TO THE SPREAD OF INFORMATION ON THE SUBJECTS OF

# Magic Lantern Slides, Operating Magic Lanterns, Dissolving Views,

ALL THE NEW METHODS AND MEANS OF LANTERN PROJECTION.





THE PRODUCTION OF EFFECTS AND SO ON AS DERIVED FROM ALL PARTS OF THE WORLD.

\$1 A YEAR.—SUBSCRIPTION—\$1 A YEAR.

EVERY OPERATOR SHOULD HAVE IT.

EDW. L. WILSON, Publisher,

AND DEALER IN

# MAGIC LANTERN SLIDES AND LANTERNS.

THE LARGEST STOCK IN THE WORLD,

116 N. Seventh St., Philadelphia.

SEND FOR OUR NEW CATALOGUE.

FIFTEEN CENTS.

## Editor's Table.

MR. C. F. RICHARDSON, Wakefield, Massachusetts, whose excellent ready sensitized paper we noticed a month or two ago, writes us that he uses an acetate toning-bath for it: and rather a slow toning solution is best. Those who are not large consumers of paper, and even those who are, would find it to their advantage to try Mr. RICHARDSON'S production.

THE PHOTOGRAPHISCHES JAHRBUCH .- The Photographic Year-book of 1878, on the fly-leaf of which we find an excellent lichtdruck of Prof. PETZVAL, by OBERNETTER, of Munich, is published by the editor of the Photographische Correspondenz, in Vienna. It contains a calender of the current year, tables for the comparison or analogy of the weights and money of the different countries, statutes of the different photographic associations in Vienna, Berlin, Albona, Bremen, Cologne, and Frankfort-on-the-Main, and the principal items of the photographic societies in foreign countries; then follows a list of the photographic journals and books which is determined by a "bibliography," containing all the photographic books which have appeared since the discovery of photography, and have not yet been mentioned under the above heading. It continues with the publication of the German patent-law; and finally its theoretical part, in giving to the photographer a collection of formulæ and hints for the various modes of working, and styles of work which is wanted. Then follows the proper memorandum book, in which half a page is devoted to every day of the year. The book is neat in its appearance, small and handy. It is intended to be for photographers, that while half a hundred other almanacs, published in Germany, are for other business men, that is their vade mecum.

CATALOGUE OF MAGIC LANTERN SLIDES, ETC.—
Many of our readers who subscribe for the Magic Lantern magazine are aware of the fact that we are the largest dealers in magic lantern slides in America, and we desire to apprise all now briefly, that we have just issued a new catalogue of such goods, which we believe to be most complete. The prices of these articles have been reduced very greatly of late, as will be seen by comparing our new catalogue with the old one. Many new selections of slides have been added to the list, and the catalogue is not only a catalogue proper of slides and apparatus, but con-

tains much of useful information for the lantern lover and worker. It contains 116 pages, and will be sent on receipt of fifteen cents to any address. It is a handsomly illustrated work also, in the best style of typography.

EXPIRATION OF THE SWAN CARBON PATENTS IN AMERICA.—The SWAN patents for the carbon process have expired in this country, and now photographers are free to use them, and make carbon prints without interference, according to Mr. SWAN'S process, full details of which are given in the American Carbon Manual. Owing to the fact that the English patents expired recently, it was impossible for the parties to get an extension of the American ones. Next month we shall give more details concerning it, and, as near as we can, an account of what photographers are entitled to use if they so desire.

CORRECTION IN MOSAICS.—Mr. E. P. LIBBY, of Keokuk, Iowa, says: "In looking over my article on page 104 of *Mosaics*, I discovered a grave error in the formulae; it should read

Water, . . . . 32 ounces.
Pyrogallie Acid, . . . 48 grains.
Citric Acid, . . . . 32 "
Acetic Acid, . . . 2 ounces.

Likewise, he says, expose from three to five seconds, should read minutes, instead.

The Philadelphia Carte Envelope. — We have received from Messrs. Nixon & Stokes an album containing samples of the Philadelphia carte envelopes manufactured by them. A few years ago but one style of these envelopes was made, and now we have an album of forty-seven pages which are covered with specimens, including those most beautifully illuminated by chromos, and by imitation of lace, to suit almost everybody's taste. We shall probably take up a description of these styles presently in a regular article, as they seem to be deserving of it, as an item showing photographic progress in this country.

Messrs. Rice & Thompson, photographic stock-dealers of Chicago, have half a column of a late number of the Commercial devoted to a notice of their house, which is truly called a "representative house;" it certainly represents the gradual and sure growth of photography in the West, and all the result of enterprise and push in fair dealing with their customers.

A PHOTOGRAPHIC SOUVENIR OF THE CENTEN-NIAL EXHIBITION .- Photography has had a good many pushes forward of late years by the way in which publishers of books have made it useful in their business as illustrations, and in the manner of publishing sets of photographs illustrating various subjects. One of the most recent undertakings of this kind has been by Messrs. J. B. LIPPINCOTT & Co., the renowned publishers of this city, who have issued a photographic souvenir of the Centennial Exhibition, consisting of a series of four portfolios, containing a fine selection of the elegant photographs of the Centennial Photographic Company, of the buildings, gems of art, and objects of interest in the exhibition, which they offer to the trade generally, gotten up in very handsome style.

We have received from Mr. C. Fabre, Toulouse, France, a little year-book called Aide Memoire de Photographie for 1878, which is published under the auspices of the Photographic Society of that city. It is a capital little work of over 200 pages, made up of matters similar to our Mosaics. Much attention is given to the emulsion process of course, and the whole is accompanied by sheets for making memoranda.

PICTURES RECEIVED .- From Mr. S. N. Doug-LASS, Evansville, Indiana, a very fine picture of an old gentleman. From Mr. Cook Ely, Oshkosh, Wisconsin, a composition picture called "Aunt Sally Ann," which is a credit to him. From Mr. R. Goebel, St. Charles, Mo., some card specimens of his work. From Mr. Louis de Planque, Corpus Christi, Texas, specimen photographs of Texas ladies, which show great progress in Mr. DE PLANQUE'S work; he is certainly a growing photographer. From R. MAYNARD, Victoria, B. C., some very interesting stereoscopic pictures. showing salmon fishing, coal mining, views of Indian encampments, Indian villages, groups of Indians, and beautiful scenery of that wonderful country, etc., which are very interesting indeed, and show good photographic work and good taste. We have hardly looked for such work from so wild a country, and are glad to see that photography is so carefully manipulated there.

Photographic Mosaics for 1878 continues to sell rapidly and is almost gone. Mr. A. Chapman, of Adel, Iowa, says: "I have just received Photographic Mosaics, which I find replete with useful hints and practical information and suggestions, especially to the young photographer. May it continue to live and find its way into every studio in the land. If its contents were

read and digested, our beautiful art would soon occupy a much higher position in the minds of our people. Thanks to the photographic literature for the progress already made."

Good Words.—Mr. F. A. Dunlap, one of our subscribers, says: "I cannot do without the *Philadelphia Photographer;* there is bread and butter in it."

Mr. D. A. CLIFFORD, of St. Johnsbury, Vermont, says: "I have been a constant reader of the *Philadelphia Photographer* for several years and desire to continue to receive it. However much you may differ in opinion upon different subjects of interest to some of the photographic fraternity, I will say that I shall always find much interest in your journal, and think a great deal of credit is due to you for the very great advance in the interest of photography, and quality of photographic work in this country since its publication commenced. I wish you much success in the future publication of the journal."

Comforting.—"The Philade/phia Photographer comes very regular, and is heartily welcomed. There is no comparison to be made with other publications. The course you pursued with Lambert and his types will eventually be largely to your advantage. There are scarcely any of those pictures being made in Kentucky, and the man who sold the process to several country operators is not held in very high esteem by them. Time will vindicate you yet.

"Yours, etc., I. B. Webster. "Louisville, Ky."

THE "PHOTOGRAPHIC COLORISTS' GUIDE," by Mr. John L. Gihon, is now in press, and will be issued shortly. In the advertising columns we give a further description of it, with a list of contents, to which our readers will please refer. We recently received from England 500 copies of the latest edition of Newman's Manual of Harmonious Coloring, in sheets, which we had proposed to publish by itself, but we have changed our plan, and will bind the sheets in with Mr. Gihon's work, so that those who are the fortunate ones who order the first 500 copies can receive this double work on coloring for one price, namely, \$1.50. Already 250 copies have been taken up by one dealer, and the rest should be ordered at once, for the following copies will be without this important addition. Altogether it will be the plainest, most comprehensive and exhaustive book on Photographic Coloring ever issued.

## Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\*Pew Cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

#### THE WONDERFUL EURYSCOPE.

CLEVELAND, OHIO, March 13th, 1878.

BENJ. FRENCH & Co.:

DEAR SIRS.—Pardon me for saying I spleened against the term "wonderful" in connection with the Euryscope, as a sensational description. After having used this instrument for various purposes, both indoor and out, I am bound to admit that wonderful is the right word.

Intelligent photographers will not be without so powerful an instrument, particularly when sold at such low prices.

Yours truly, J. F. RYDER.

Boston, March 14th, 1878.

BENJ. FRENCH & Co.:

Dear Sirs.—I cannot express how pleased I am with your new Euryscope Lenses. They can be used for almost every kind of work, but for groups and views they are perfect, and cannot be surpassed, as you will see by the print I send you of a group on a 17 x 21 plate, which is sharp to the edge, made with No. 6 Euryscope, in one minute, with the largest diaphragm. I have also made some large heads, which are excellent. I can cheerfully recommend these instruments to the fraternity, knowing as I do that photographers will find them indispensable; and I do not consider a gallery complete without one or more.

J. W. Black.

## Hance's Photographic Specialties. See Advertisement.

FOR SALE OR RENT. — Photograph gallery ready furnished. Will rent the gallery and sell fixtures, or rent it furnished. No other gallery within twelve miles. A business of \$100 per month can be done by a good artist; last occupants (by copying also) done twice that amount. Address

A. P. WILLIAMS,

Frenchtown, N. J.

For Sale.—A gallery in business centre of Chicago. Instruments for all sizes to 18 x 22; six thousand registered negatives. Engravers' patronage alone nearly pays running expenses. Will take country gallery for part pay. Address A. Hall,

170 E. Madison St., Chicago.

For Sale.—\$750 eash will buy the best gallery in Springfield, Illinois; population of city, 25,000; rich farming country, and about fifteen small villages in the neighborhood. Instruments from \(\frac{1}{2}\) to mammoth size, are A No. 1. Skylight unsurpassed. Price for card photographs, \$4.00 per dozen. Invoice of gallery, \$1650.00. Good reason for selling. For further particulars address H. Klinghloz, Springfield, Ills.

## Waymouth's Vignette Papers.

A Good Gallery for Sale.—I have a good paying gallery furnished with Voigtlander quick working lenses, an extra 4 x 4 American Optical Company's Double Swing Back Box, and a Magic Chair, with three back glass-baths, backgrounds, burnisher, good chemicals, and enough of them, good stand, and north light. Only those meaning business need apply to

PHOTOGRAPHER, Warrenton, Warren County, Mo.

RECREATION, HEALTH, BUSINESS.—Two or three hundred dollars can be made this season, on views in your own neighborhood, by using my Patent Dark Tent. Very convenient for developing plates of all sizes. Send for circular.

FRANK ROBBINS, Oil City, Pa.

Wanted.—An A No. 1 retoucher. Apply to C. S. Roshon, 408 Market St., Harrisburg, Pa.

USE WAYMOUTH'S VIGNETTE PAPERS.

SEND FOR ILLUSTRATED PRICE LIST of Photographic Tents, Dark-Tents, Dark-Valises, and Tent Furniture. The cheapest and best. No discount to dealers; customers have lowest prices. Great variety of styles and sizes. Send to

GEORGE H. PATCH, Stevens' Point, Wis.

### Hance's Photographic Specialties. See Advertisement.

A Bargain, for eash only, one of the finest galleries in Indiana; doing \$300.00 a month; a good chance for an energetic man with small capital. For particulars, address Риото,

Care of N. C. Thayer, Wabash Avenue, Chicago, Ills.

OPERATOR WANTED.—In one of the finest galleries in Philadelphia. Apply, with specimens of work (which will be returned), and photograph of applicant. Also a good Negative Retoucher wanted.

BROADBENT & TAYLOR, 914 Chestnut St., Philadelphia.

Any one having any pictures made before 1868 on tinted plates (chocolate or maroon), or knowing where such can be obtained will find it to their advantage to address,

W. C. EATON, Newark, N. J.

A. LAMOR,

EDW. LAMOR, ARTISTS.

Photographs finished in Water Colors, Crayon, or India Ink, in the highest style of the art.

PORTRAITS IN OIL A SPECIALTY.

Negatives finely retouched.

738 SANSOM STREET, PHILADELPHIA, PA.

For Sale.—A portable frame photograph house, 12 x 22 feet, containing head-rests, background, dark-room tanks, chairs, wash-stand, looking-glass, glass-bath, collodion-vials, oil-cloth, matting, three frames with specimens, all ready to go to work, except camera and stand. The whole for \$175 cash. Is at present located in this city.

G. & W. H. RAU,

922 Girard Avenue, Philadelphia.

## Waymouth's Vignette Papers.

For Sale.—An old established place in a most desirable northeast city. Studio now last September, and everything new put in. Instruments of Scovill's (American Optical Co.'s) make, etc.; Seavey's grounds. Ill health compels me to give up the business. For further particulars, address Box 463, Westboro', Mass.

Wanted Immediately.—Two Ink and Water Colorists; Ladies preferred. Address

L. D. JUDKINS,

16½ E. Washington St., Indianapolis, Ind.

GREAT chance to make money. If you can't get gold you can get greenbacks. We need a person in every town to take subscriptions for the largest, cheapest and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address

"The People's Journal,"

Portland, Maine.

Burrel's Chart and Hints to Patrons.— Your gallery is not complete without them. For particulars, see advertisement in January, February, and March, 1876, issues of this journal. Price, \$1.25, unmounted, by mail, or by express, mounted.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

By a young man, as operator; will guarantee good work; can retouch. Address Operator, Lock Box 353, Lockport, N. Y.

An experienced operator and retoucher desires to make an engagement with a reliable party; is competent to take charge of any department of practical photography. Only parties needing first-class help need answer. Address J. S., care of *Philadelphia Photographer*, 116 North Seventh Street, Philadelphia.

A negative retoucher wishes a position in Philadelphia. Address M., 116 N. Seventh St.

As landscape or machine operator or printer, having fifteen years' experience; can give the best of reference. Address A. W. Fatsinger, 532 Walnut Street, Philadelphia, Pa.

As operator or general assistant; a good retoucher; would prefer running a gallery on shares. Address G. M. Thomas, Dennison, Ohio.

A position as first-class operator, retoucher, or printer. Seventeen years' experience in first-class galleries. Address "Chemical," 9½ North Eutaw Street (up stairs), Baltimore.

#### USE WAYMOUTH'S VIGNETTE PAPERS.

As printer and toner, or retoucher, by a young man of ten years' experience; would like a situation in a first-class gallery. Address Box 398, Fulton, N. Y.

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As negative retoucher, water colorist, indiaink and crayon worker, in first-class gallery; fifteen years in the husiness. Address X. Y. Z., Elrod's Gallery, Main Street, Louisville, Ky.

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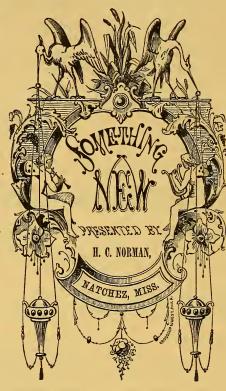
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A,	 13/4 "	 11 "	9¾ "	11 x 13,	8 x 10,	57 00	
2,	 2 "	 12½ "	11 "	12 x 14,	10 x 12,	70 00	
C,	 21/2 "	 16 "	14 "	17 x 20,	14 x 17,	93 00	
3,	 3 "	 19 "	16¾ "	18 × 22,	17 x 20,	140 00	
6,	 4 "	 26½ "	23½ "	22 x 26,	20 x 24,	225 00	

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			66				17		60	00		66	5	"	4.	6	и		110	00
66	6,	18	66	66	20	X	24	"	90	00		66	1,	2 aı	ad 3,		"		48	00
													3,	4 ar	nd 5,		"		88	

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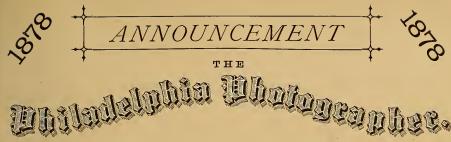
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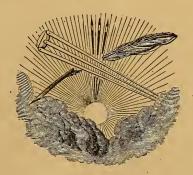
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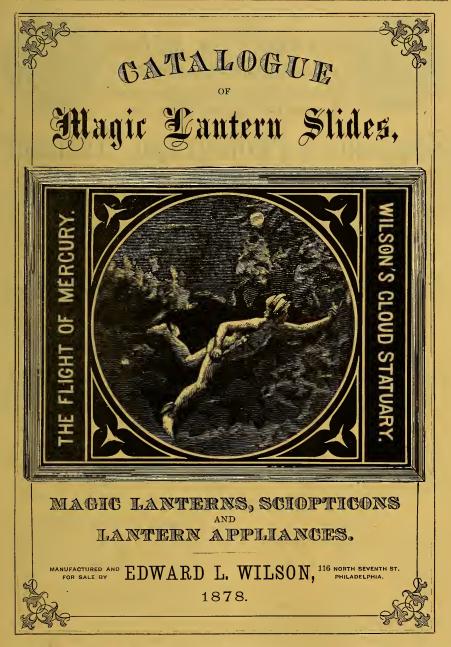
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# Philadelphia Photographer.

Vol. XV.

### MAY, 1878.

No. 173.

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### BIBLIOGRAPHIC.

GIHON'S PHOTOGRAPHIC COLORISTS' GUIDE.

THERE are few persons connected with photography whose talent is of a more versatile character than that of Mr. John L. Gihon. He is equally skilful at the palette or at the camera; at the retouching desk or in the printing department; at portraiture or landscape work; it matters not which, he is able to work with equal success and always with excellent results.

Our readers have had opportunity to examine his work, both as a portraitist and as a landscape photographer, and with the products of his pen they are very familiar. We are unable to give them an example of his work as a colorist, but in its stead, in order to reassure them of his talent in that direction, and for the common good, we have issued a new book on coloring or painting photographs and kindred work, written by Mr. Gihon. It is by no means a pretentious volume, although it thoroughly treats upon the subject, and contains, as he says, "much in little." Not only among photographers, but with the general public, too, there has been, and is, a great demand for such a book of instruction. The manuals which have been printed of a kindred nature have been excellent in their day, but there have been large improvements made in this branch of photography, as well as in others,

and a work up with the times is needed. Mr. Gihon has tried to meet this want, and with, we believe, eminent success. superfluous matter has been purged from it, as well as everything else calculated to mystify and mislead. The reasons for this are stated in the author's preface, from which we take, viz.: "I well remember that when I was but a youth, and became infatuated with photography, I imagined that all sorts of mysteries were connected with the process of coloring a photograph. I recollect, too, how badly I was led astray by the advice of an amateur, and the ridiculous methods with which he led me to experiment. It is my object to prevent you from making the same mistakes. Believe me, the more simple the practice the better will be the result. Become the master of a few materials, and with them exercise not only your handicraft, but as well give to your work the impress of well directed thought. I shall endeavor to impart some information in regard to every class of finished photograph."

The principle laid down in the beginning has been fully carried out, and yet we have all the details of the work fully treated under the following heads: Chapter 1, India-ink Work; 2, The Principles to be Considered in the Application of Colors; 3, The Materials used in Finishing Photographs with Water Colors; 4, Water-color

Painting as Applied to Photographs, 5, Relative to the Use of Paints that are Mixed with Oil; 6, Coloring with "Pastels;" 7, Production of the Picture originally known as the "Ivorytype;" 8, Directions for Making the Pictures known as the "Crystal Ivorytypes," "Photo-Enamels," and "Photo-chromes;" 9, Crayon Work; 10, Negative Retouching; 11, About Matters so far Forgotten; 12, Rudimentary Perspective.

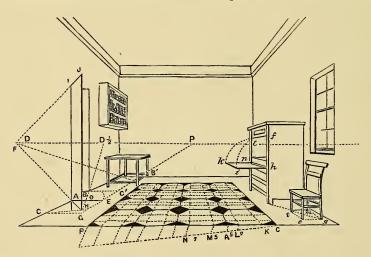
This last chapter is entirely new and fresh, and will be found exceedingly useful to those who need to draw accessories, backgrounds, etc., in their pictures, or who wish to paint their own backgrounds. We extract the closing pages of this as an example of the whole, viz.:

"I will now conclude this chapter by giving an illustration of the interior of a room, all of the objects contained in it being drawn in strict accordance with the rules of

point B, draw an indefinite line; from the point A draw a horizontal line, which will give the point o; take the size A o, and bring it from o to E; from the point P, and through the point E, draw a line, which will give G on meeting B o prolonged; draw the horizontal lines GC and BC', and we shall have two squares, BC'EA and AEGC, in which a semicircle must be traced, BEC. Let A H be given for the base of the door: this line is equal to AB, being a radius of the same circle. Prolong HA as far as the horizon, which gives F; from this point, and through the point I, draw a line, and from H, raise a vertical, which will give I and terminate the door.

"The base of a door must always begin from the centre, and is comprised in a semicircle, which has for radius the width of the doorway.

"To open an escritoir .- From the points



perspective. It must be remembered that all the examples I have given must be regarded only as diagrams illustrative of principles, and that they have no pretensions as pictorial embellishments. They are skeletons upon which more attractive matter may be moulded.

"The present picture will need very few explanations, since the same laws are involved that have already been illustrated.

"To open a door.—Let AB be the doorway. From the point  $D_2$ , and through the

h n, draw horizontal lines; from the point h, as centre, and with a radius equal to hf, describe a quarter circle, fi; from the point n as centre, and with a radius equal to np, describe a quarter circle, pk; join the points i k by a straight line which should go to the point P, the vanishing point of the front of the escritoir.

"To find the base of a chair.—Construct the square, egmf; from its angles raise vertical lines.

"To imitate a flooring of octagon and

square tiles.—If we wish to place four octagons from P to C, divide this space in such a manner that CK contains five equal parts, KL seven of these parts, LA five, AM five, MN seven; from the points C, K, L, etc., draw a line to the point of distance which gives the point B and the diagonal CP; wherever this diagonal intersects the lines going to P, draw horizontal lines, and thus we obtain squares, on which, by drawing diagonals, we obtain the figure required.

"A careful study of these diagrams will give to the student the key to the practices of the legitimate 'artist,' and be very helpful when it is necessary to add accessories and fancy backgrounds to colored photographs."

With a few hints taken from Chapters II and X, we leave the work to the judgment of our readers.

"The painting of photographs has ever been regarded as somewhat of a mechanical operation, and the artist who lent himself to the practice lost 'caste' with his brotherhood.

"Even now, there are vast numbers of people, the majority of whom are of the gentler sex, who imagine they can acquire the art with as little study and as much facility as would be expended upon the simplest of trades. I have had a good many pupils of this kind, and in their anxiety to 'learn in a few lessons,' have been annoyed and amused as well, by being questioned as to 'what color I used for flesh?' 'what color for that coat, dress, or scarf?' as the case might be.

"As no one paint evenly spread over a surface can possibly represent any object in relief, I propose, as briefly as possible, to give the accepted theories of color applicable to the painting of photographs, as well as to the more legitimate branches of art.

"Theoretically, it has been determined that red, yellow, and blue are the bases of all of the millions of combinations that we are constantly looking upon. Antagonistic to the doctrine as it may seem, pure white is supposed to be a mixture of these three, which have been termed 'primaries.' Black is the conventional symbol for total obscurity, for impenetrable darkness.

"The theory has been proven to be cor-

rect; but, unfortunately, when we attempt to carry it into practice, we meet with difficulties that shake our faith. The paints that we buy are not the pure ethereal essences that nature uses. When we mix a substantial red, yellow, and blue together, instead of producing a brilliant light, an absence of all, we have a very dirty-looking mess. In explanation, however, it must be remembered that there are mechanical difficulties in the way, and that what we accept as colors are contaminated with earthy, mineral, or vegetable matters. In the artist's real practice, he never uses a pure color. It is only by an observation of the solar spectrum you can realize the gorgeousness of these primaries and their delicate combinations. It is beyond the power of man to imitate them. Although we have pigments that present a brilliant appearance, they are by no means unsullied as regards purity. The blues incline towards green or purple, the reds to orange or purple, and the yellows to green or orange. . .

"Although I am capable of admiring a print from a well retouched negative, I still claim that the practice involved in its production has been fearfully detrimental to the interests of both the colorist and the photographer.

"In times gone by, when our pictures were not sufficiently smooth to suit the vanities of our customers, colored or finished work was resorted to, and both the artist and photographer made their profits from the orders received. Now, the inducements to purchase a high-priced article are removed to a great extent, and the public content themselves with photographs from 'retouched negatives.' There are comparatively few establishments where the work upon them is consummated by the colorist attached to the staff; it is delegated to some young person who receives a mere stipend for performing a very tedious and somewhat difficult operation. Excessive mechanical skill is expected from the retoucher, and if he or she displays that, and turns over to the printer plates that are irreproachable in relation to smoothness, but little reference is made to the likeness that has, most probably, been destroyed. I would not growl if the

work were confined to making less apparent the blotches, moles, freckles, and scars which disfigure the face of the majority of our race. I am hurling my anathema at the growing disposition to be represented other than as we are, and that has reduced our art to the position of a propagator of lies.

"However, it is not my province to give any opinion as to the subject in hand, but to tell of the accepted method of its treatment. In this case there are several ways

of proceeding.

"I beg that it will be the inclination of every retoucher to study well the photograph made from the plate primarily; then to endeavor to improve, but not to make a caricature of his subject. That class of picture can be as readily produced by abject flattery as by sharp ridicule.

"Remember that there are such effects of light and shade denominated as half-tones. These, when well rendered, constitute the chief beauties of a photographic portrait. They must be handled in the most delicate manner, otherwise where before we had gradations we will instead be furnished with chalky patches, all caused by the indiscriminate use of the pencil. The high-lights on a human head, or those portions that are represented by pure or nearly pure white, occupy but very small spaces. For verification of this fact, it is well to study in detail some masterly portrait in crayon, and to note the very limited use to which the white chalk has been adapted. There will probably be a glow upon the most prominent part of the forehead, a line down the nose, a speck in the eye, a few markings on the cheek and chin, and maybe a touch or two upon the lower lip. All of the balance of the paper will be covered with tints. The same profitable and educational references can be made by looking over a collection of fine engravings. There the untouched white paper represents the pure lights. You will not be able to find much of it."

The price of this work is \$1.50. As an inducement to early purchasers, the first five hundred copies will be accompanied, under the same cover, with the latest English edition of Newman's Manual of Harmonious Coloring. Subsequent copies of Mr.

Gihon's work will not have this addition. See advertisement.

THE THEORY OF COLOR IN ITS RELATION TO ART AND ART INDUSTRY.

By Dr. Wilhelm von Bezold. Translated from the German by S. R. Koehler, and with an introduction and notes by Prof. Edward C. Pickering. Boston: L. Prang & Co., Publishers. \$5.00.

This handsome work comes to us just at a time when it is most wanted, and should be read even before or with Mr. Gihon's book. Photographers are none other than light painters, and the same theories which follow in the consideration of that lost subject, color, hold good in great degree in light painting also. Dr. von Bezold seems to have duly considered this fact, for he has by no means treated his subject narrowly. speaks of fancy weaving, the manufacture of wall papers, chromo-lithography, and other art industrial branches; but forgets not to give us much, and very much, instruction of great value both to the photographer and the photographic colorist. He gives graphic explanations of the newest results, and makes them seem very familiar and easily understood; and it is quite as important that photographers should study these instructions as it is that workers in other branches of art and art industry should study them. Colors should be studied in all their varied relations by every photographer, and we hope to hear of this excellent work being in the hands of many of them. That our readers may be assured that it is by no means a dry and insipid treatise on natural philosophy, we make some extracts from it below, and shall probably follow with some more hereafter. Eleven chromolithographic plates and over sixty fine woodcuts serve to illustrate this handsome work of two hundred and seventy-four pages.

"Contrast between 'Light' and 'Dark.'—Let us endeavor to gain a clear insight into the principles which the artist must follow if he desires to make the effects of contrast tributary to his purpose.

"The first of these principles is the contrast between 'light' and 'dark' which divides the picture into illuminated and shaded parts, and forms the basis of modelling

(that is to say, that part of drawing which imparts to the objects represented the appearance of roundness).

"Generally speaking, and unless some special circumstances should render the contrary necessary, the light, which is the more powerful element, will be concentrated upon smaller spaces, while a greater extent of space will be assigned to the subdued tints of the shadow. Large surfaces of light, with shadows of very limited extent, will but seldom make a favorable impression, and are apt to look flat and restless. Artists therefore prefer to avoid such conditions of light, and even the landscape painter does not like to select the hour of noon for making sketches from nature, as the effects of light and shade just spoken of prevail at that time of the day.

"Various degrees of luminosity, lights and shadows—these are the most potent means at the command of the artist for the purpose of imparting relief to, and separating from, each other, the objects represented in his painting.

"The decorative artist makes his design intelligible by giving different colors to the various parts of his ornament, and by separating them by outlines if necessary. But the painter cannot avail himself of the means last alluded to. To him the outline is simply the ideal boundary at which two differently colored surfaces touch each other upon the picture-plane, while in reality these surfaces are not even situated upon one and the same plane, but occupy positions in space, one behind the other. A difference in color is not sufficient to make this clear to the mind of the beholder; it needs a further difference in the degree of brightness to bring out the various parts of the picture, so as to make them appear as if they were situated upon different planes. A painting must be composed so as still to produce the illusion of materiality, even in an engraving, or when executed en grisaille (gray in gray).

"Modelling.—The contrast between 'light' and 'dark' forms the basis of modelling, as we have before observed. Three methods may be employed for this purpose, all of which differ essentially from one another.

"These three methods, which are made

use of to relieve an object in a picture from its background, are the following: First, the object is made to appear light upon a dark ground, or dark upon a light ground; that is to say, it is treated as a silhouette. Second, the light parts of an object in the foregrouhd are painted lighter than the ground, while the dark parts are painted darker than the ground; that is to say, the differences in brightness in the object are made greater than those in the ground. Third, the gradations of light and shade in the object are represented as being opposed in direction to the same gradations in the ground; that is to say, the bright side of the object is placed upon a dark ground, the shaded side upon a light ground.

"The first of these principles is employed comparatively but seldom, for an object treated as a silhouette is apt to look flat, although it is very easy to make it stand out from the ground.

"The second method may be found in almost every picture, frequently in connection with the third. The very first figure in this work, for instance, is an illustration of it. Every photographer who places a gray background of medium brightness behind the person whose portrait he is about to take makes use of this method.

"The third principle, however, of which Fig. 61 is an example, is the most effective



Fig. 61

of all, especially when employed in connection with the second. It was practiced most extensively by the great artists of the Netherlands in the seventeenth century.

"Simple as these various methods of distributing light and shade may appear to be, it yet required a very long time to bring

them gradually to the knowledge of the artists. The second and third, indeed, were already clearly enunciated by Lionardo, but the silhouette proper came into use only at a much later period. Strange as it may seem, however, that the human intellect should have been so slow in discovering such self-evident principles, it is nevertheless still more inconceivable that these same principles should have been forgotten again, after they had once become known, and had been visibly embodied in the works of the great masters. But this was actually the case at the commencement of the present century; for at that time the comprehension of the principles just mentioned had been lost almost entirely, while the comprehension of those more subtile aids, which may be derived from color, was wholly out of the question."

### STATUS OF THE SWAN CARBON PATENTS IN THE U.S.

A GREEABLE to promise made in our last issue, we proceed to give such information as is needed by American photographers to enable them to understand what relation they sustain towards the so-called "Carbon patents."

On June 14th, 1864, patent No. 503 was sealed to Joseph Wilson Swan, of Newcastle-on-Tyne, England, in the Patent Office of Great Britain, said patent being dated February 29th, in the same year. Fourteen years being the allotted time of life of English patents, Mr. Swan's said patent expired last February 28th, in Great Britain. as foreign patents die here when their life ends in their birthplace, Mr. Swan's patent was no exception, and is therefore now of no avail in this country. While it lived its career was anything but brilliant and successful, and its owners made one last grand effort, during the last year or so, to make it produce them some substantial consolation for their losses with it.

Even at this time there are only about four hundred licensees in Europe, where the process can be worked much more easily than here; and in America there are not, according to the party selling the processes, more than ten times that number.

The patent afore mentioned of Mr. Swan was secured with the following claims:

- 1. The preparation of colored gelatinous tissues.
- 2. The production of photographs by what is known as the single transfer process.
- 3. The production of photographs by what is known as the double transfer process, india-rubber being used as the temporary support.

Therefore the expiration of this patent allows the *free use to all* of Mr. Swan's method of manufacturing tissue; the production of pictures by the single transfer process; the production of pictures by double transfer, using india-rubber as the support, as laid down in the *American Carbon Manual*.

The manufacture of tissue can be undertaken successfully in a small way by almost any one, but as its exclusive sale cannot any longer be controlled by any one house, it will be found more economical by those who wish to dabble with it, to buy it of their dealer. No doubt supplies of it will be offered, should any demand for it arise. It may be that the parties who formerly held exclusive sale of it, may act more liberally than heretofore, and be glad to sell it to any one who wants it, unless they are bound by their promises to "licensees" not to do so. That is their business and not ours.

As to the single transfer process, all prints made by it are necessarily reversed. For engravings and kindred pictures this matters but little, and some parties may not object to it in portraiture. It is easier and cleaner than the double transfer process. However, where a reversed picture is objectionable, the latter process must be resorted to, and in it, it becomes necessary to first transfer the picture to a paper coated with pure rubber dissolved in chloroform or other solvent, which serves as a support for the film only during development in hot water, and from which it is a second time transferred to its final support. This second transfer has been obviated in some directions by the patented process of Mr. J. R. Johnson, which those who attended the first convention of the National Photographic Association in Boston will remember was shown there by an agent of Mr. Johnson. It consists in a method of developing the print upon collodionized glass or other support, "impenetrable to air or water." It is not essential, however, as good carbon prints can be made without it as well as with it, by the exercise of a little more care, and the expense of a little more trouble.

Therefore it will be seen that any photographer can now practice the carbon process according to Mr. Swan, without license or fee paid to any one, and full and complete instructions are given in the *Carbon Manual*.

(To be continued.)

### PHOTOGRAPHY IN NATURAL COLORS.

A CCORDING to promise, I give you herewith a full detailed description of Mr. J. Albert's new invention, which Dr. Vogel has mentioned already in his report of the last exhibition in Nuremberg.

Mr. Albert has solved the problem of reproducing natural colors in photography by combining his printing process, the Albert-typie with the chromotypie. I presume that all your readers are already acquainted with the Albert-typie, and I need not say anything further about that process.

To make Albert's new process clear to you, I have to recapitulate some well-known facts in the chromotypie. We all know that the different colors appearing, for instance, in an oil painting, can be reduced to the three principal colors-red, blue, and vellow. By printing those three colors one above the other on the same sheet of paper, we will receive a kind of black; yellow and blue will give green; red and blue, violet. Every picture is, therefore, a mixture of the principal colors, which appear of course on different places in different shades of tones. To reproduce a picture by way of chromotypie, as many lithographic stones are used as colors appear in the original.

Albert follows in his invention exactly the way of chromotypie; but instead of using lithographic stones, he has his printing plates commonly used for the Alberttypie. Instead of being obliged to use as many plates as colors in the original, he needs only three plates, each plate reproducing respectively the three principal colors. New and interesting for us is the

manner he adopts for securing plates which can produce such wonderful effects.

Already, a couple of years ago, a Frenchman, Mons. Ducos du Hauron, tried the experiment of making colored pictures by aid of photography. He influenced his negatives during the exposition by a red, green, or violet glass, expecting that the red light should produce the strongest effect on the negative influenced by the red glass; but the result showed the contrary, since we know that the red light has the least effect on a negative. Albert remembered in time a discovery of Dr. Vogel, that every collodion can be made sensitive for red or yellow light by mixing it with certain anilin colors. Using this discovery, and trying over and over again the effects of colored glasses on negatives prepared with mixed collodion, Albert adopted the following way as the best for receiving the three necessary original negatives:

He takes from a colored object (for instance, an oil painting) three negatives of the same size and focus, the first one with a collodion sensitive for all colors except red; this negative must be taken under a green glass, and will give the printing plate for red, because all colors had their effect on this negative except red and those colors which are composed of a mixture of red with another color; orange, for instance, as a color, being composed of red and yellow, will have a little more on the negative than red. The second one with a collodion sensitive for all colors except vellow and its mixture colors. This negative must be taken under a violet glass, and will give the plate for yellow. The third one with a collodion sensitive for all colors except blue; this negative has to be taken under a red glass, and will give the plate for blue.

These three colorless, original negatives indicate by different shades and half-tones the different varieties of light, dark, or mixed colors in the original. Albert makes from these negatives three plates fit to be used for the process of Albert-typie. The first plate will be rolled in with red printing color, the second with yellow, the third with blue. Plates thus prepared are printed one over the other on the same sheet of paper, exactly in the same way as in the

chromotypie, the printer taking express care that the outlines of the prints fit exactly one in another. The result will be that the colors of the print correspond in mathematical exactness with the colors of the original.

These are, in short, the main points of the new invention, which will have undoubtedly a great future. You can imagine, Mr. Editor, what an immense deal of labor, of patience, and of perseverance were necessary to overcome all the difficulties, not to forget the heavy expenses, considering how many silver-baths were spoiled daily and had to be spoiled in trying the different mixtures of collodion. In spite of all, Albert has succeeded so far, and the future alone will show to how many branches of industry this new invention will be usefully applied.

OSCAR VON KRAMER.

Munich, March 23d, 1878.

### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 107.)

ET us look at the equation again. As has previously been stated, there must be the same number of atoms in both members of it, as is very evident; hence the sum of the atomic weights of one member must be equal to the sum in the atomic weights in the other. Thus we have

$$\begin{array}{c} \text{AgNO}_3 + \text{HCl} = \text{AgCl} + \text{HNO}_3 \\ (108 + 14 + 48) + (1 + 35.5) = (108 + 35.5) + \\ (1 + 14 + 48) \\ 170 + 36.5 = 143.5 + 63 \\ 206.5 = 206.5 \end{array}$$

This is always the case; the molecular weights are a key by which to verify the equation. Are they not something more? If we compare the first and third equation given above (the one an equation of the symbols of the substances, the other an equation of the molecular weights of the substances), will we not find something worthy of notice? Certainly yes, for it is evident that the third equation, that of the molecular weights, shows in what proportion by weight the substances must be present to enter into the re-

action completely. If there were, for instance, 170 grains present of silver nitrate and 36.5 grains of hydrochloric acid, after the reaction there would be no silver nitrate left, nor any free hydrochloric acid, not a particle of either; but in their place would be, as represented by the molecular weights, 143.5 grains silver chloride and 63 grains of free nitric acid. If there had been different weights of either present we could easily have ascertained how much would have entered into the reaction, and how much of one of them there would have been left unaffected. Upon these facts rests almost completely the solution of the so-called chemical problems.

The first thing then in solving a chemical problem is to ascertain the reaction, and to express it in the form of an equation; this done, the remaining part of the solution becomes comparatively easy. Let us take an example. Suppose that it is required to know how much metallic silver there is in one ounce of silver chloride. As there is no reaction to take place we may take this equation, AgCl=Ag+Cl, to be true, as it plainly is. We would also have molecular weight of AgCl=atomic weight of Ag+ atomic weight of Cl, and from these the proportion, one ounce AgCl: weight of Ag in one ounce AgCl: molecular weight of AgCl: atomic weight of Ag; or, in other words, one ounce AgCl: Ag :: 143.5: 108; or again, one ounce AgCl: .753 ounces Ag:: 143.5: 108; that is, there is .753 ounces silver in one ounce silver chloride.

Suppose it should be wished to be known how much oxygen could be obtained by heating one ounce potassic chlorate. We should have the equation KClO<sub>3</sub>=KCl+O<sub>3</sub>; or making a proportion one ounce KClO<sub>3</sub>: O:: 122.6: 48; from this we would have the amount of oxygen to be .391 ounces. It is plain that in these the process could be reversed; thus we could easily find how much chlorine in silver chloride; how much potassium, or chlorine, or potassium chloride in potassium chlorate, etc.

In one formula given for Newton's emulsion, there are to the ounce twelve grains of cadmium bromide and eighteen of silver nitrate; the remark being made that this will make three grains excess of silver ni-

trate, let us see how this will be. We will have the equation

And the proportion (12 grains:  $\times$  Molecular wt. CdBr<sub>2</sub>: mol. wt. AgNO<sub>3</sub>:: 272: 340:: 12 g.: 15 gr.

Thus we see it takes twelve grains of CdBr<sub>2</sub> to precipitate all the Ag as AgBr from 15 grains of AgNO<sub>3</sub>, so eighteen grains of AgNO<sub>3</sub> makes three grains in excess plainly.

A method is also given in connection with this formula for determining the strength of hydrochloric acid, by measuring how much is required to convert ten grains of silver nitrate into the chloride. Now for the sake of the example, let it be supposed a person did not wish to use silver nitrate for this purpose, but substituted lead nitrate for example, and he wished to find how much lead nitrate would be equivalent to ten grains of silver nitrate. He would have the equations

$$\begin{array}{l} 1. \left\{ \begin{array}{l} \mathrm{Pb.(NO_3)_2 + 2HCl} \!\!=\!\! PbCl_2 + 2HNO_3 \\ 331 \ + \ 73 \ = \ 278 \ + \ 126 \\ \\ 2. \left\{ \begin{array}{l} \mathrm{AgNO_3} \ + \mathrm{HCl} \ = \ \mathrm{AgCl} + \mathrm{HNO_3} \\ 170 \ + 36.5 \ = \ 143.5 \ + \ 63 \\ \\ 3. \left\{ \begin{array}{l} \mathrm{2AgNO_3} \ + \mathrm{2HCl} \!\!=\!\! 2\mathrm{AgCl} \!\!+\! 2\mathrm{HNO_3} \\ 340 \ + \ 73 \ = \ 287 \ + \ 126 \end{array} \right. \end{array}$$

We see that in the first and third equations the same amount of HCl is required, so we would have

$$Pb(NO_3)_2 = 2AgNO_3$$
  
331 = 340

Mol. wt.  $Pb(NO_3)_2$ : mol. wt.  $2AgNO_3$ :: $\times$ : 10 grains.

331 : 340 :: 9.73 gr. : 10 gr. We could then substitute 9.73 gr. of lead nitrate for the silver nitrate.

There must always be one thing borne in mind, that a substance when in a crystalline form may contain "water of crystallization." This is always of one amount, and may be driven off by heat, when the substance will lose its crystalline form. As this water of crystallization must weigh something, it must be either got rid of or taken into account; as for a given substance it is always the same, it is easier to calculate with regard to it than to drive it off. In the examples above given, the substances are said to

be "anhydrous," that is to say, in English, "without water," meaning that the crystals contain no water of crystallization; hence no account is taken of it. But suppose we wished to use, say, ten grains of pure copper sulphate for some purpose. By consultation of some work in chemistry we would find that the complete formula of copper sulphate is CuSO<sub>4</sub>, 5H<sub>2</sub>O; that is, in every molecule of copper sulphate there are five molecules of water. So we would have

Mol. wt.  ${\rm CuSO_4}\colon {\rm mol.}$  wt.  ${\rm CuSO_4},\ 5{\rm H_2O}::\ 10~{\rm gr.}:\ \times$ 

Carrying the calculation out as in previous examples, we should obtain the amount of copper sulphate we should have to weigh to obtain ten grains of CuSO4. There is another kind of calculation that it may be well to mention; that is, calculating the percentage composition. Suppose we have alcohol, C2H6O, and we wished to find the percentage of carbon, of hydrogen, and of oxygen, we would have C<sub>2</sub>=12×2=24, H<sub>6</sub> =1×6=6, 0=16, the molecular weight of C<sub>2</sub>H<sub>6</sub>O=46. We would have the proportions  $C_2H_6O: C_2:: 46: 24$ , and 46: 24:: 100: 52.17.  $C_2H_6O: H_6:: 46:6$ , and 46:6:: 100: 13.04. C<sub>2</sub>H<sub>6</sub>O:O::46:16, and 46:16::100:34.79. That is, in 100 parts of alcohol there are 52.17 of carbon, 13.04 of hydrogen, and 34.79 of oxygen; in other words, there is 52.17 per cent of carbon, 13.04 of hydrogen, and 34.79 of oxygen.

There is one property of the elements that cannot be omitted. All of them evince, as we know, a tendency of uniting with each other; on this chemistry and its laws are founded. But some of them when thus united form a compound which acts exactly as if it were an element, either as if it were a metal or a non-metal, forming a base on the one hand, uniting with the acids to form a regular series of salts, following all of the laws of valence and reaction just as if it were an element in every sense of the term; or on the other, uniting with hydrogen, and with hydrogen and oxygen to form acids, and then with bases to form its series of salts, just as seriously and with as much assurance as the best element ever discovered could do.

These substances are generally taken at their word, or better, by their actions, for "actions speak louder than words," and are treated as if they really were elements. Thus we have nitrogen and hydrogen; these unite in certain proportions, and form what is known as ammonium, having the formula NH<sub>4</sub>. Here we know that nitrogen is quadrivalent and hydrogen is univalent, so the for-

mula might be expressed— $N_{-H}^{-H}$ ; thus we

see that four of "the points of affinity" of the nitrogen are "saturated" by the hydrogen, one to each point, and there is left one point of the nitrogen free. From this we conclude that ammonium is univalent, and so it is found to be. This ammonium is found to act as a base, so it might be included among the list of elements, as long as one remembered that it was not an element, under the head of univalent metals.

Then again, on the other hand, carbon and nitrogen unite in the proportion of one atom of the one to one atom of the other, with the formula CN, and called cyanogen; carbon tetrivalent and nitrogen trivalent, we would have —C —N, indicating that cyanogen is of itself univalent, and so it is found to be. Its other characteristics would place it, if an element, under the head "non-metallic." It unites with hydrogen and with hydrogen and oxygen to form acids, just as any well-behaved non-metal should.

These substances are called radicals, or residues; residues is probably the better name of the two, but radicals is the one in most use. Besides these two there are no end of others; they are all obtained, theoretically, in the following manner: First, there is a fact that any chemical formula can be divided into two parts, and each of these parts will have the same valence. Thus hydrochloric acid, HCl, can be divided into H and Cl, both univalent; nitric acid, HNO<sub>3</sub>, into HO and NO<sub>3</sub>. These divisions are called residues, or radicals. It is very evident that of these there will be an infinite number, but fortunately most of them are of minor importance, indeed, of no importance, that is, to many people; while it is in, by, and with many of them that the most complicated, complex, extensive, and least explored parts of chemistry have to do. That division of chemistry made for convenience,

called "organic," and of which mention may be made further on, is so completely loaded and crowded with these very same residues that one cannot take three steps within its broad boundaries without encountering three times three of them. Indeed, its very atmosphere is so befogged with them that but with the greatest difficulty can the sun of understanding pierce the obscurity. But this is not to our purpose.

This then will probably be all that will be given of theorectical chemistry; as such, there can be no doubt that much has been left unmentioned. This has been for two reasons; one, that much not here stated is thought to be of minor importance; the other, that some facts, if mentioned here, would only tend to confusion and obscurity; but when taken up as they shall be met hereafter, may be treated easily, and with much more probability of being lucid.

All the theory that has been and will be spoken of, has been and shall be according to the most modern accepted ideas. How much this new chemistry and its new nomenclature differ from the old, they that are acquainted with the old may recognize, while for others the similarities and differences will not be mentioned; it would hardly be worth the trouble for them to hunt those differences. That person who knows nothing of what the old chemistry was, will find less trouble in learning the new than he who has been familiar with the old all his life. Neither is a knowledge of the old at all necessary; all modern writers, with a few exceptions, make use of the new nomenclature, and even if the old should be met with, one would hardly have much difficulty with it.

But let all these things be as they may, chemistry is not different from other sciences; if one understands its theorectical part the remainder will not be difficult; he will be at home anywhere within its wide domains. But if the theory be unsound, or rather but partially understood, then the person stands a stranger in a strange land; he can hardly see as far as his hand may reach, and is afraid to move half of that distance lest he fall into some hidden pit, some slough of worse than despond. Under such circumstances he cannot view the beauties that surround him; he cannot profit by

the goodness of the land; his fears are great and many; his cares are only to rid himself of all these toils, to place himself upon ground he knows to be firm; and his only hopes that he may be successful in that attempt.

A person should master the theory, and this is no hard matter; then he may go forth, may sail over every sea of chemistry, in confidence that he possesses a chart that will never fail him.

Hereafter we leave theoretical chemistry, and speak in a general way of general chemistry.

(To be continued.)

### PRINTING SOLUTIONS, PRINTERS AND RETOUCHING.

BY J. A. TODD.

POSITIVE BATH.—Take, say, ½ pound of nitrate of silver; dissolve in 60 ounces of water; and separately dissolve ½ ounce of citric acid, 1 ounce of alum, 10 grains of permanganate of potassa. Add to the silver solution in the order as here written, and stand in the sunlight a day or two to clear. Filter well before using. Float the albumen paper two minutes. Draw carefully over two glass rods; one rod a little above the other, so that the paper will touch both rods whilst being drawn from the bath. Dry slowly, and fume thirty minutes. If, upon hanging up to dry, the paper looks as if greasy, or that the silver solution forms in drops on the surface of the paper, add more water to the solution, and draw more carefully over the glass rods. This makes the best positive bath I have ever used. Its advantages are: toning easily, eveness when toned, a beautiful richness in color, entirely free from metallic spots or stains, and the paper, when silvered, remains whiter for a longer period. Indeed, I prefer it a day old at least. In using glass rods in the foregoing manner, I find it necessary to carefully wipe well with a wet rag, so as to remove any adherent particles that might abrade the albumen surface.

Now, in regard to printing and the printer. So much having been already written in reference to the former, I will, with all due respect to those working in this line, make a few suggestions, and I trust the intelligent printer will see the point at which I am

driving; so that both parties, when situated like myself in this particular, may be mutually benefited. To all those who are wishful to understand their position in our profession, I need offer no further apology for my remarks. I will, therefore, say to all who think best to act upon the advice of the much-lamented Horace Greeley, and "go West," to think twice before they make a move; and to those that have already started, to stop by the way and learn to forget their stereotyped recommendations of having worked for the leading establishments in different parts of the countrymore particularly New York. It is worse than bosh to say that Sarony hardly knew how to get along without them, or that Kurtz had really turned out but few good pictures since they left, etc. I will plainly say to all such they are not needed in the business at all, much less in a country like California.

Where all have sat frequently for their portraits, and are presumably exacting in having their ideas carried out, to hear their talk in the operating-room, you would believe they were all bred to the profession. And to all those who will come West, first try and stay a little longer where they are able to make a living simply by printing alone; and that, during the very large amount of their leisure time, they will sit down with a will, and learn to retouch negatives. This branch of the business, Mr. Editor, I am sure ought to be combined with that of printer-printer and retoucher. I hold determinedly to the opinion that by retouching you more readily learn the good and available properties in a negativelearn more by retouching in a quarter of an hour the real private character of a negative than you can by printing six months. So far, the printers have as a rule ignored all chances of combining the two branches of the business, seemingly forgetful that but few galleries can employ both printers and retouchers, their business being too small to need both; I for one have for long been in this very condition, and have had to endure it through necessitv.

I am very much surprised to think that the printers have so long been heedless to the advantage of so favorable an opportunity of extending their usefulness in the business. The simple printing is as near all mechanical as anything requiring a little judgment possibly can be. Retouching is very intimately allied to it, even in that very particular; one remove higher, perhaps; certainly a branch of the business requiring more careful, studious application.

Combine the two branches in one person, even if it needs a wider scope of intellect to meet the requirements; the profession will be benefited thereby, and a vacancy that hitherto has been but exceptionally filled, even in the leading large establishments, as well as in those where business, like my own, is of very limited capacity, supplied.

SACRAMENTO, CAL.

### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

. SERIES No. 5.

The Plans and Construction of various styles of Skylights.

I T is not inappropriate that I should commence this series with a couple of paragraphs on portraiture, written by H. P. Robinson, the talented English photographer. In the first place he quotes from Dr. Johnson, as follows:

"Every man is always present to himself, and has, therefore, little need of his own resemblance, nor can desire it but for the sake of those whom he loves, and by whom he hopes to be remembered. This use of the art is a natural and reasonable consequence of affection, and though, like other human actions, it is often complicated with pride, yet such pride is more laudable than that by which palaces are covered with pictures that, however excellent, neither imply the owner's virtue nor excite it. Genius is chiefly exerted in historical pictures, and the art of the delineator of portraits is often lost in the obscurity of his subjects; but it is in painting, as in life, what is greatest is not always best." He then adds:

"Photography has been employed to represent everything under the sun that is illuminated by his light. Nay, it has gone further than this; it has brought pictures

out of the caves of the earth, where the light of heaven never enters, and where the only source of actinism has been coiled up in a wire. It has even compelled the pyramids of Egypt to give up some of their secrets, and the catacombs of Rome, pictures of their dead. The earth, the sea, and the sky it delights to render; it multiplies the works of genius, whether the original vehicle has been paint or marble, or that 'frozen music' of which the great architects of old piled up their marvellous temples. The pirate and the forger have called in its innocent assistance to help them in their dirty work, but for which photography has returned the compliment by assisting justice to execute the law; and so truthful does the law consider its evidence, that it is accepted as an unquestionable witness, which it would be useless to cross-examine. It helps the trader to advertise his wares; it aids the astronomer to map the stars; and compels magnetism to write its own autograph; and all this in such a way as no other has ever yet approached. But of all the uses to which it has been put to benefit and delight mankind, none can compare with its employment for portraiture, the chief object to which its inventors intended it to be applied, and for which it appears to be most thoroughly adapted.

"The portrait has always been the favorite picture with the world. It is an especial favorite in England and America, because it appeals to the domestic sympathies, and these are the most domestic nations on earth. Johnson is reported to have said that he would rather have the portrait of a dog he knew than all the historical pictures ever painted.

"The art of portraiture naturally leads us to the consideration of the circumstances attendant upon its proper prosecution. It is manifest that it is of primary importance to construct or secure a place where the subject can be seen to the best advantage, and where we can conduct our work with the utmost facility. Such places are indifferently termed ateliers, studios, operating-rooms, skylights, and glass-houses."

Mr. E. L. Wilson has written as follows in regard to the subject:

"More and more interest seems to be

taken in the construction of the glass-house as our art progresses. How to secure the best mode of lighting the model, and how to construct the atelier, have become quite as important questions as what lenses or collodion or developer are best? The idea that any room with a top- or side-light in any convenient locality or direction is good enough for making pictures is becoming emphatically exploded, and there is a growing desire among artists to find out the best way to construct their lights in order to secure the best results. So much has been said and written about it that we can hardly promise anything new; yet we have so many applications from parties who have been awakened, for instructions, that we cannot see that it will be out of place to record a few hints upon the subject.

"The thing of first importance is to select the locality for the glass-house. This should be done with much care, and well considered before any decision is made. should not disregard the fact that the quality, and not the quantity or intensity of the light, is the great requirement to be sought for. A strong light produces unpleasant and inartistic shadows, and contracts the features of the model; consequently, the direct action of the sun's rays should generally be avoided. Only a practical hand and a truly artistic eye can manage such light to produce good effects; and these qualities are not possessed by most of us, we fear Care should be taken to secure a proper elevation for the glass-room. The 'first-floor' principle, adopted in some of our cities, is a wrong one, unless the buildings on each side are low. No neighboring tall building should be allowed to interfere and exclude the light on either side. The horizontal light is needed to enable us to make quicker exposures, and to obtain easier access to the light.

"Though the sitters may complain of having to climb so many stairs, we can promise them better pictures if they will 'come up higher.' We know of two rooms in our city almost foot for foot the same in size. One is a story higher than the other, and, of course, in the higher the best effects are obtained.

"Having then secured a proper place,

how shall we build the glass-room? One part should be open to the north, another to the east, a third to the west, and the south side should be closed. In many cases it will be found impossible to have a side-light; but, if this be so, care should be taken that the inclination of the top-light is toward the north. It would be better to elevate the room even a story higher to get one sidelight at least. It will make all the difference in the world to your sitters; in fact, it is almost a necessity that the model should face the north, in order that there need be no contraction of the features by a too powerful light. Even should a dark wall be on the north side of the room, the sitter should face it, or nearly so, and the south should be the dark side.

"We subjoin the description of one that will compare favorably with any light in our city; and, considering it is possessed of the very best arrangements, we offer it as a safe model to go by in constructing a glassroom.

"The top-light faces directly towards the north, and there is a side-light facing to the east, as well as an exact duplicate open to the west. The dimensions are as follows: Width of side-lights, 13 feet; height of side-lights at the lowest point, 6 feet 10 inches; height of side-lights at the highest point, 11 feet 9 inches; distance from the floor to the bottom of the side-lights, 14 inches; width of the top-light, 17 feet 6 inches; length of the top-light, 15 feet; depth or working distance of the room, 32 feet.

"Instead of blinds, curtains or shades are used to modify the light, both at the top and at the sides. These are so arranged with spring rollers that each shade can be made of any size, and be readily induced to occupy any position under the glass. midsummer, or when the sun is well up in the zenith, its direct rays are excluded from the room by wooden blinds working in a frame built upon the roof south of the light. The shades are of heavy material, darkblue in color. Experience must teach the use of them. It has been suggested that a still further improvement could be made by opening a window still further back than the side-light, so that illumination could be

secured between the background and sitter. It is claimed that much of the merit of the celebrated 'Berlin cartes' depends upon such a method.

"The room being a wide one, it is divided into two apartments by a large curtain hanging from the roof to the floor. Either or both sides may be used at pleasure. One model will require an east and another a west-side-light.

"It is often asked what kind and size of glass is best to use? Glass in as large pieces as possible should be employed, as less light will be interrupted by framework. The ventilation of the glass-room should not be forgotten, but is a matter that should be left to the superior knowledge of the architect."

[Mem.—The glass-room described above, by Mr. Wilson, was built at great expense, in the very extensive photographic establishment of Messrs. Henszey & Co., 812 Arch Street, Philadelphia. I succeeded to the business, and occupied the premises for several years. I indorse all of Mr. Wilson's remarks concerning it, and consider it one of the finest skylights under which I have ever operated. It had the rare quality of being readily adapted to the requirements of a single sitter or a very large group. The building is now used for other purposes.—John L. Gihon.]

The following description of the studio of Messrs. Loescher & Petsch, the world-renowned photographers of Berlin, was published in one of the numbers of the *Philadelphia Photographer*, in the year 1866.

The main glass-room faces nearly due north, and is protected by a two-story house from the direct rays of the sun. The copying-room, the main side of which also points north, is likewise protected against sunlight.

"The studio proper is of the following dimensions:  $35 \times 17$  feet floor, and height from ten to fourteen feet. The inclination of the roof is four feet in seventeen, and is sufficient to remove the accumulated dirt whenever a rainfall occurs. The moisture on the inside, caused by condensed vapor, runs off through a small slit between the roof and the sides. In this way the gutters, which are generally placed below the supports, could be dispensed with. At the junction of the two glass surfaces is a slight

iron rod to carry the rollers for the illuminating apparatus, which absorb very little light. The northern side, and about three-fourths of the roof, are glazed. The plates of glass are twenty-four inches square, and only sixteen bars were necessary as supports. The central ones are  $\frac{2}{3} \times 3$  inches; the side ones are an inch thinner. In this way a broad mass of light from the north becomes available, which, in some particular instances only, has to be modified.

"It became necessary to invent an arrangement which would exclude every partiele of side-light, and reduce the source of light to one opening only. Ease in the management and certainty in the effect were necessary; durability and a pleasing appearance desirable. These considerations induced Mr. Petsch to substitute for the oldfashioned curtains of doubled muslin frames covered with some opaque material, which were easily movable and avoided all the shortcomings of the former arrangement. The old system with curtains never excluded the light absolutely, while at the same time they would, in course of time, hang down loosely, leaving openings between the different strips, the light from which would be annoying to the sitter."

Appended is a short notice of one of the best appointed and well constructed studios in the United States. It was designed by Mr. G. Frank Pearsall, the proprietor of the establishment in which it is located.

"It is forty-two feet long by twenty-two feet wide, containing a plate-glass skylight 12 x 14 feet, and a side skylight 7 x 14 feet, glazed with plate-glass. The skylights have an iron frame. They are located in the centre of the ceiling, making a right- and left-hand light. The frames of the backgrounds, screens, side screens, etc., are of solid black walnut. The most approved spring-roller curtains are used inside, and outside are also canvas curtains, used to prevent the entrance of direct sunshine at certain hours of the day. Under the sidelight are sliding pieces which, when moved from side to side, leave openings for ventilation; also, three large ventilators in the ceiling. The ceilings are neatly and handsomely frescoed, and the floor is covered with a magnificent English Brussels carpet,

of appropria'e pattern. The furniture is very elaborate, including many useful pieces not usually seen, and a wardrobe of laces, draperies, etc., for use when ladies forget such essentials, making the whole appear more like a cosy parlor than a studio, which has a good effect again upon the mind of the sitter, old or young."

Constructing the Roof of a Glass-house, by "London Stone."-"The construction of the roof of a glass-house is a matter that will bear, and should get, very serious consideration. In all those that I have as yet seen, the ordinary hot-bed sash-frame appears to be the model copied; the result being that in windy weather the shaking of the roof breaks the unyielding putty, and when the rain comes, the water finds its way in at every break, and plays a fine game with the generally not too substantial furniture. Of course, all available dishes, etc., are brought to the rescue, into which the drops fall with a hearty splash, but immediately rebounding, spread themselves over surrounding objects. When it is wanted, not only to catch, but also to hold, these sportive drops, I find the best thing to employ is a bottle with a funnel stuck in it. Thinking, however, that prevention is better than cure, I will endeavor to show how to effectually caulk the seams of those leaky shipsglass-house roofs.

"The form of sash-bar is rather different from that in common use, and consists of two pieces. Here are sections of them:

"The object of the grooves in B is to catch and convey outside any leakage at the edges of the panes, and is copied from the Photographic News Year-Book for 1864.

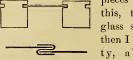
"Where the ordinary form of sash is in use, a strip of wood shaped thus, and screwed to the under side of the bar, will be found a very useful addition.

"The plan, however, I have to suggest, is the employment of a strip of soft india-rubber cord in place of putty on the outside of the glass, which is brought closely down upon it by means of the slip of wood (or, preferably, iron)

shown above, marked A. The glass having been bedded as usual, in putty, A is screwed down, and with the india-rubber forms an impermeable joint, which, unlike the putty, will yield to the shaking of the roof in windy weather, but will not allow the passage of any water. Another advantage consists in the fact that if the glass be also bedded on rubber, they can, by merely unscrewing A, be lifted out without the very serious risk of breakage that attends the removal of glass fastened in with putty; and photographers would then be able to arrange with glass merchants for the yearly renewal of the glass in their studios at a low figure; no unimportant point, when the rapid yellowing of common glass is considered. When large panes are used, leakage will also take place at the lap-joints, partly by capillary attraction, but mostly from the bending of glass in heavy winds. To prevent this, a thin piece of elastic might be inserted between the panes, and supplemented by the use of a strip of wood placed on the top of the iron rods that run along under the laps inside the house. As these joints soon get filled with dirt, the employment of the wood would not occasion any loss of light, and would strengthen the glass very materially, thus allowing the use of large panes. There are many modifications of the above plan that might be adopted, but I will venture to assert that the principle is the right one."

The above we clip from an English contemporary as being useful, and add a few remarks on the same subject from Mr. A. E. Turnbull.

"I have always been bothered with leaky skylights, until a short time ago, when I determined to put a stop to it. I tore out my old light, and made a frame of pine pieces  $1\frac{1}{2} \times 3$  inches for the centre strips, the edges being considerably heavier. In place of making the sash as usual, I cut a groove on each side of the centre strip, about one-half inch from the top, like this, and put



pieces of tin in like this, to prevent the glass slipping down; then I mixed my putty, about one-half

white lead, and puttied the glass in care-

fully, then gave the outside two heavy coats of white-lead paint, and have been well rewarded for the trouble. One great mistake in putting in lights is that the sash is not heavy enough, so that the wind shakes the putty loose. With this, if the putty all comes out, the glass cannot."

In 1870, certain members of the Ferrotyper's Society, of Philadelphia, were appointed to investigate the subject of "skylight," and to report upon it. The following are extracts from their report:

"We will describe what we claim to be a model light. It should have a north-, side-, and top-light combined. The length of the top-light, thirty-five feet, running east and west; the width, from north to south, eighteen feet; lowest point north, ten feet; highest point south, fifteen feet. The sidelight should be the same length east and west as the top-light, and come down within a foot of the floor.

"The rays of the sun should not fall directly upon the glass. To prevent this, we recommend that wooden blinds be erected on the outside over the skylight, and so arranged that they can be worked from the inside. A light of this size would require five sections of blinds, and each section will require eight blinds, about thirty inches wide and seven feet long, to cover the light properly. The blinds must be hung at the top far enough, so that when the blinds are raised to operate, the top blind will shade the top pane of glass. Therefore, when the blinds are shut down, they will be wider than your skylight. The frame to receive the blinds must be made very strong, and well fastened; if it is not, a heavy wind will blow them down. They should be turned down every night, thus affording a perfect protection to the glass from rain and hail.

"In addition to the blinds, you will require narrow screens inside, say three feet wide, made of light-blue muslin, hung on spring rollers at the top of the light.

"Another great advantage gained by having blinds over your light is that they keep the room cool in warm weather. We are informed by one artist who erected blinds over his light, that the highest point reached by his thermometer during the last summer

under his skylight was 98°, which is low for a skylight, when it was often that out of doors; and that the same thermometer, hanging in the same place under the skylight, reached 120° with the same ventilation, but no blinds over his light. With this combination of blinds and screens, arranged to work in perfect order on a light of this model and dimensions, a good artist can produce any effect of light he wishes on his subject.

"When the artist is ready to operate, he will raise the blinds until the sun will show between them, then fasten them, and he will have a good, soft light, all from the north, and equally as good as though it was shaded by a tall building. In case you want the light stronger, turn the blinds up farther, and it will be nearly as strong as though there was nothing over your light."

(To be continued.)

### GERMAN CORRESPONDENCE.

Obernetter's Reverse Collodion Process— About the Qualities of Emulsion-Cotton and Warnerke's Process—A new Cotton, not Dangerous—American Photography in Europe—Pictures on Black Backgrounds —Photographic Patents in Germany— German Art at the Paris Exhibition.

COMMUNICATED to you in my last letter about Obernetter's reversed collodion process. It has been frequently tried here with the best success, although I am very far from asserting that it could take the place of wet plates. I believe, however, that it offers many advantages for the dry process, and that the amateur will always like to prepare his wet plates by this method, as he can dispense with the expensive silver-bath, and consequently avoid all faults of the same. It seems as if there were no further necessity for another emulsion process after such a development of the same. I admit that the old albumen, tannin, raisin, coffee, and beer plates are out of date. I admit also that there are good emulsions in the market, so that it is not necessary to go to the trouble of self-preparation. But there are many photographers who do not live in a place where they can purchase it, and have no

more time to order it than they would need, under good circumstances, to prepare it themselves. Now, the self preparation of emulsion is a work in which even judicious people do not always succeed. Mr. Obernetter, who has worked much with emulsion, and whose great dexterity is generally known, approves also this opinion. A simple method for the preparation of emulsion plates is therefore of great value. There is no doubt that Obernetter's method is simpler than any. He collodionizes his plate with the silver collodion, \* sensitizes it in a brompotassium bath, 1:12, washes it with common water, and dries the plate. A plate thus prepared is eight times less sensitive than a wet plate. The sensitiveness, however, will be astonishingly augmented by pouring over it a filtered solution of five grammes nitrate of silver in one hundred grammes of water, which is so neutralized by ammonium that it is just cloudy. After the exposure the plate is washed again, and developed with an alkaline developer. After fixing with cyanide of potassium the plates may be strengthened at one's option. The formula for the developer is as follows:

#### No. 1.

Bicarbonate of Ammonium, 20 to 50 grammes.
Water, . . . . . . . 1000 "

No Bromide of Potassium.

#### No. 2.

Pyro, . . . . 1 gramme. Alcohol, . . . 10 grammes.

Mix to one hundred cubic centimetres of first solution two to four cubic centimeters of No. 2. I have produced with it the most excellent of bromine plates, but also discovered that it is less advantageous for iodine silver plates. In order to get the plates sufficiently sensitive, after washing they must be poured over with a little acid nitrate of silver solution (eight per cent.) They are developed like common wet plates.

In regard to emulsion, Mr. Warnerke has made a very interesting publication by describing his method with all particulars. He differs from all other proceedings, inas-

much as he adds first the nitrate of silver in his collodion and the iodizer afterwards. I recommended this way already seven years. ago, while experimenting with Wortley's method, where I often experienced that bromide of silver precipitated in form of fine grains by the addition of the nitrate of silver. Warnerke has also mentioned this fault and prevents it by his reverse method, in which, according to my experiments, this fault will occur more seldom. It is also very interesting to observe that Warnerke, in his new formula for making dry-plate collodion, dispenses with the gelatin, which was considered during long years as a necessary agency for the preparation of good dry plates. Not only Warnerke, but also Wortley and other dry-plate men have given it in their formula, and now they prove unanimously that it is not necessary. Chardon, of Paris, whose new method has been prized there, goes still further, and proves that the high temperature of acids is not rigorously necessary. Warnerke's formula is as follows: Cotton is boiled for one hour in a solution of carbonate of sodium, washed, and dried. In this state it easier takes the acids, so that it is possible to make a great quantity of collodion at once. Take Nitric Acid, spec. wt., 1.420, 180 c.c. or 6 parts. Sulphuric Acid, sp. wt., 1.840, 540 c.c. or 18 "

then the sulphuric acid, and finally when the mixture has reached a temperature of from 60° to 65° C., by and by, the cotton, which has to be very powdery.

Necessity creates invention. By the new railroad rules, which exclude the transportation of collodion cotton by railroad or mail, photography in the provinces is impossible, as the non-observance of this rule is menaced with the highest fines. The chemical works of Schering, in Berlin, have found other means to avoid the calamity. They produce a non-combustible cotton, which forms a gelatinic mass and burns slowly without exploding, undergoes no change by concussion, and converts into coal without burning when heated in a closed room. It is a very harmless body; no objections can be raised to its transportation. It is easily

<sup>\*</sup> The formula of which has been given in the last correspondence, to which let me add that alcohol of 96 per cent. should be used.

soluble in alcohol and ether, and forms, with ten parts of alcohol and an equal quantity of ether, an excellent collodion.

America was during long years the only country in which ferrotypes were produced. It seems that they should be introduced in our country now. The great stagnation of business forces photographers to invent all kinds of things to make their living. Berlin is not poor in places of amusement near which little shanties are built, and signs put up with the inscription, "American Photography; ferrotypes, ten and twenty cents apiece." I know a proprietor of one of those shanties who has made a fair business during the past year, although only the lower class frequent his place. Many other photographers who suffer under the pressure of the bad times, work for the art repositories in making pictures with black varnish backgrounds. The trimmed pictures are dipped in a gelatin solution, 1:10, and pressed on a warm glass plate like pigment pictures. They are then gelatinized from the back, the glass cleaned and coated with a negative varnish with an addition of anilin green, which appears nearly black.

I do not like this work. People seem to be delighted with it.

Since we have the general patent law we have oftener the occasion to hear of photographic patents. We copied our patent law from the American, with the sole difference that here everything has to be exhibited during eight weeks to the public, before the patent can be granted. This measure prevents or hinders patents being granted on articles which are already known. Every one should be on their guard that nothing escapes their notice The Photographic Society of Berlin, in which I have the honor to act as president, has named a patentprotest commission, which keeps an eye on all new applications, and which has already several times prevented patents from being granted for old things. Among the curiosities, I mention the late application on the well-known anilin process, which was patented in 1864, in England. Another interesting application was for my photometre, which I published in 1867, under the name Photometre for Carbon Process. My successor calls it Photometre for the Anilin Process, and claims for this change a patent.

The great depression of the present time has found another victim, an establishment with a universal reputation, Adolph Braun & Co., in Dornach. After the death of Mr. Braun the establishment was turned into a stock company, which closed the year with a deficit.

As it is known the company published a new journal on photography in the German and French languages. The proof number appeared in December, and nothing since. It depends upon the action of a general meeting of the stockholders if the publication shall continue or not. This seems to prove that they had not too great a success with their new enterprise.

You have heard that Germany did not at all intend to exhibit in Paris, but has finally concluded to be represented by paintings and sculpture. The petition for the participation of multiplying arts, photography included, was declined last month, which I greatly regret.

Truly yours, H. Vogel. Berlin, March 30th, 1878.

#### FRENCH CORRESPONDENCE.

THE Photographic Society of France held its general meeting on Friday evening last, the 5th instant. The commission which had been chosen to award the five hundred francs given by the "Ministre de l'Instruction," for the best made travelling camera, gave their report on the results obtained by the competitors. The commission was unanimous in their opinion that not one of the makers had made sufficient progress to deserve the entire prize; neverthless that each of them (there were three) had something new and intelligent in their respective cameras, and that it would be well to divide the prize between them; so the commission had come to the conclusion to give to the first two, two hundred francs, and the last named one hundred francs, as a reward for their trouble and ingenuity.

Monsieur Poitevin, the father of photography having for base the reaction of bichromates on gelatin, once more makes himself heard. He presented, last night, to

the Photographic Society a new means to print photographic proofs, by employing a mixture of two per cent. of perchloride of iron, and three per cent. of tartaric acid; the paper prepared with this solution is, when dry, placed under a negative and very short exposure, and then inked up. Mons. Poitevin's letter being very lengthy, I could only seize these few items, leaving for further observation to see if there is a superiority over the old method.

Mons. Pench made a presentation, in the name of an English firm, of a set of pellicles for making artificial skies in positive prints; they did not excite much interest.

Mons. Chardon presented to the Society a means of detaching on gelatin, negatives which are required to be reversed for carbon or other processes.

Make a solution of gelatin,

Gelatin, . . . . 20 per cent. Glycerin, . . . 3 "

After having talced a glass, pour this solution upon it, and when dry cover it with collodion; in cutting it round the edges the film will rise from the glass with ease; it must now be cut into the required size for the negative to be reversed. Place the negative in a dish of water, put the gelatin film slowly down upon it, the collodion surface naturally upwards; the damp will swell the gelatin a little; the negative must now be raised out of the dish, bearing the film; it is then put upon blotting-paper, and an indiarubber pad rubbed over its surface to drive out extra water and obtain perfect contact with the collodion of the negative. It must now be left to dry slowly; when dry it will leave the glass with ease, bearing the negative with it.

I had the honor to present the Society with a sample of my new pellicles, intended to lighten luggage in travelling. They are made as follows: A glass plate is well cleaned and then talced; it is then collodionized.

#### Collopion.

Alcohol,		500	grammes.
Cotton, .		20	"
Ether, .		500	"

When dissolved, twenty grammes of castor

oil are added. When the collodion is dry, the following solution is poured over it.

Gelatin, . . . . 20 grammes. Water, . . . . 100 " Glycerin, . . . 3 "

When dry, it is covered with a collodiobromide emulsion. The plate is then cut round the edges, and the film, thick and hard like a piece of cardboard, leaves the plate with ease. A sheet of yellow, black, or red paper is pasted on the back, and with a pair of seissors the film is cut into bits of the required size for the dark slide, placed one above the other in blocks of twelve, in the same manner as Mr. Warnerke places his negative tissue.

It may be remarked that the gelatin is protected on both sides by collodion, and therefore it may be developed in a dish without fear of swelling. When put into the dish, the yellow paper peels off immediately, and leaves the pellicle transparent like a glass, so that the image can be seen all the time and the development followed with certainty.

Mons. Couture presented a new apparatus for washing photographic proofs. It consisted of a large, circular zinc basin, similar to a shower-bath tray. In the centre is a pivot upon which works a hollow brass shaft; in the lower part of this shaft are placed four small brass tubes having four or five holes bored in the sides. When the central tube or shaft is filled with water, the water rushes out of these small holes, and the shaft is thus set in motion, and the proofs are kept in continual movement and in a contrary direction to that of the shaft. In fact, Mons. Couture has had a very good inspiration to borrow the old and well-known idea of the hydraulic fountain to assist photographers in their daily labors.

PROF. E. STEBBING. 27 Rue des Appennins, Paris, April 6th, 1878.

#### WHAT IT IS.

IN your April number, page 111, Mr. Frank Robbins announces his trouble with little black specks in his negatives after development. I have labored under the same difficulties, and think I found the cause.

When we go out to make views by the wet process, of course the collodion is agitated more or less, and is full of air-bubbles, and some of them so small that if we don't see them when we flow the plate, the collodion sets and the air-bubbles break, leaving minute holes in the film, which, of course, admit the light and make little black spots, thousands of them. Again, if the air-bubbles don't break and leave holes, they become little hard substances, and when the plates are developed either fall out and make pinholes, or remain and make white spots. In hot weather these troubles are most frequent.

CHARLES O. MERRILL.

New York.

I can say that I have had the same trouble, and think it must come from unwashed pyro remaining on the plate, as I never had it right after a thorough washing, even when I fixed my plate several days or weeks later. But with insufficient washing, I always had it, even several months after fixing, and if they did not at all show before fixing, it would begin to show then. I always do, and would advise any one to wash their plates well, and particularly to fix them right away, as fixing later is rather risky for the above troubles.

A. Levy,

#### A HARD BLOW.

WE are accustomed to being taken to task for what we do, and have grown so callous that we mind it but little, when, as is generally the case, the blows come from those whose speculations are spoiled by what we say against them and their doings, for the defense of the fraternity at large. But look at this communication!

"A journal claiming culture, instruction, and refinement, etc., using the word tintype for self or advertisers, when no such word or thing is in existence; comment unnecessary. Public led astray by unscrupulous ignoramuses, and do not censure them. Persons claiming intelligence, refinement, and a knowledge of photography, especially, using the word tintype for a photograph made on a plate enamelled or specially prepared, do not know what constitutes a photograph or what photography means; therefore can

teach no one they wot not of. Consider the source, 'ignorance, bliss, etc.' Name the article proper; call things by their proper names, when claiming instruction, culture, light on photography, and general intelligence, etc., etc. Then vulgar names will not adorn the pages of your journal."

Is there not enough here to make any editorial pillow uneasy, and any editorial chair as it were full of nettles or scraps of tin curled upwards and inwards? And yet this is only an anonymous communication after It hails, we think, from Alum Bank. The post-mark is unfortunately blurred. Well for the author that it is. He takes us to task for want of culture, while his very words prove him to be uncultured. Do they not? For Macaulay, the great author, tells us we need not to be so careful about our words in our magazine articles, but when we come to write history, then we must prune most elegantly. Let our ill-tempered and sensitive correspondent wait therefore until our history of photography appears, and he won't find any such gem of a word as "tintype" in it. We are crushed, nevertheless, and want our mysterious correspondent's name.

## LEVY'S FRENCH PHOTOGRAPHIC EMULSION.

GOOD deal of interest prevails in the A growth of the emulsion processes, and the practical photographer is waiting patiently until some one develops a method for working emulsion sufficiently certain, reliable, and speedy, to warrant its introduction into every-day practice, or, in common parlance, that will be "as good as wet." A number claim to have attained this great result, but we believe none have yet been found who have done so fully. There is one gentleman, however, Mr. Albert Levy, of New York, to whom much credit is due for having made great progress with emulsion, and who, so far as we know, more progress than any one else. He has simplified the manipulation so much that it is quite as easy as the "wet process;" he has reduced the time of exposure very greatly, and claims that his emulsion does

not change readily, and that it works uniformly the same. With these assurances we have made a few experiments with Mr. Levy's emulsion, with plates wet and dry, both for portraiture and landscape work, and lantern transparencies.

These experiments being few, as we have said, we do not consider ourselves capable yet of passing full judgment. But this much we are prepared to say, namely, that we are impressed with the ease and simplicity of the process, on account of the very few manipulations required, of its certainty in every respect, and of the excellence of the results. Of the quickness of the emulsion, we cannot say that it is equal to the wet collodion process with the nitrate bath. It is slower. As to this, we shall have more to say hereafter. What we have said is to encourage others to make trial, and experiment with us to perfect a process that, when perfected, will be an endless source of convenience and comfort to every photographer, and that long hoped-for result will be accomplished, namely, the ability to make work without the nitrate bath, equal to that made with it, in the same time.

We append Mr. Levy's process, that all who desire may experiment as suggested, and will be glad to offer our services, and those of *Sphynx*, to aid them.

Shake up the emulsion well an half hour before using, and flow the plate slowly in the dark-room. As soon as set, immerse in water and let remain until no greasiness of surface is present, though a longer time does no harm. The plate can be exposed in the camera at once. If so used, let dry for a few seconds, wipe off the moisture (and mark of pneumatic holder, if used) from back, and place in shield and expose in camera. If, on the other hand, the plate is intended for future use, place it, on removing it from the water, in the preservative, and let it remain there from three to five minutes. On removing it let it drain well; wipe off the back, and stand on end on blotting-paper or drying-rack in the dark-closet until dry, when it can be put away in the negative box for use when wanted. Plates so preserved will keep indefinitely.

On removing the shield from the camera,

after exposing a plate (either wet, as first noticed, or dry, as it is termed when preserved), take it in the dark-room and immerse the plate in water for a few seconds if wet, longer if dry, and on removing flow over some developer mixed with pyrogallic acid, two or three grains to the ounce.

Carbonate of Soda, . . 1 ounce.
Bromide of Ammonium, . 80 grains.
Honey (teaspoonful), . . 1 drachm.
Water, . . . . . 1 pint.

The image will appear at once and gain full printing density, if the exposure has been right, without any further means, and with perfect freedom from fog.

If fearing overexposure, dilute the developer one-half with water, and proceed as before, and then, on finding such is not the case, pour off and strengthen by adding more, or pour off and use it without any dilution. This gradual development is by many much used (although not equally productive of intensity), for by it the choicest gradation of tone and perfection of negative may be secured.

The development finished, wash and fix, by immersing in hyposulphite of soda, one pound, water, two pints, and when all traces of the white or unaffected portions of the film have disappeared, wash well and thoroughly under tap and place on shelf to dry. When dry, varnish, but better not to do so for twenty-four hours.

Dry plates, far more than wet, are disposed to loosen on the edges and lift from the glass. To obviate all possible danger of such an occurrence, the use of an edging, prepared and for sale by Mr. Levy, is recommended.

Plates prepared in the evening will be found all dry next morning and ready to be stored away in negative box, and must be carefully guarded from actinic light. The developer used is after the formula of Dr. J. J. Higgins.

We hope our readers will take up this matter intelligently, and work it up to great success.

Gihon's *Photographic Colorists' Guide*, will be mailed, post-paid, to any address for \$1.50



Answers.

In the Philadelphia Photographer of February, page 40, in "Sphynx," "J. H. S." asks about inventorying old negatives. It would be a very difficult matter to establish a general rule as to their value. My experience is, that negatives carefully made, so as to please the party, and properly cared for and filed away, are worth on the average one dollar each for cards and cabinets, and two dollars each for larger sizes. Before the great fire in Chicago the stock of negatives I had were as good as forty thousand dollars at ten per cent. interest, and there were less than twenty thousand selected.

Here I have now a little over five thousand. and in the past two years they have paid me about two thousand dollars per year; so you see I have reason to think that good negatives properly cared for pay, and I find that among the most valuable negatives are the oldest taken. I follow the plan of having every negative satisfactory to the party; these are all printed, registered, and indexed in alphabetical order, placed in suitable envelopes, with name and number plainly written, and filed away in boxes holding one hundred 8 x 10's and two hundred 5 x 8's, and larger sizes less numbers; each box is marked on the outside, in plain sight, the numbers it contains; place these in a room as near as possible to the outside door, so that in case of fire they can be readily carried out. Those who try this course, and keep it up for a series of years, and let their customers know that they can get good duplicates at any time, will soon find themselves laying a foundation for an income equal to so much real estate.

To "G. M. B.," same page and number, I will say, "Give the d—l his due." I in-

vested my little one hundred for a license in October, 1876; in the December following I sold carbon pictures to the value of over four hundred dollars, and their sales since have been quite satisfactory to me, quite as much as I expected when I bought. I would say, however, that I was not so carried away with it as many were, and took the precaution not to attempt to crowd the chromotype up by crying silver prints down, and so far as I have been able to learn, all who have done so have made it a failure, so far as pay goes. For porcelain 1-9 to 10 x 8, properly colored, they are a long way ahead of any other material that has been tried. In larger sizes, simple transfers attached to the glass, either plain or colored, they are fine, please good judges, and bring good prices. I got for 11 x 14, \$15 for the first print, and \$5 for duplicates; 18 x 22, \$30 for first, and \$15 for duplicates. This for plain; for colored ones fifty to one hundred per cent. more; for the porcelain colored, 1-9 to 1-4, in oval cases, \$10 each; half size, \$15; 4-4, \$25; 8-10, \$35. These are not every-day occurrences, yet, not like angels' visits, and they draw trade for regular silver print work.

Now don't think from this that I am interested in the sale of the Lambertype, for all the interest I have in the matter is the benefit I have received by sales of carbon pictures in my gallery.

In reply to "C," I would refer him to Landy's cut for skylight; nothing can be better.

A. Hesler.

Evanston, April 18th, 1878.

#### Questions.

I have a pair of matched 4 size portrait lenses, one works about two seconds quicker than the other. Is there any remedy? Could the fixed diaphragm of the slow one not be enlarged so as to admit light enough to work in time with the fast one?

How can I secure paper flock to an unbleached cotton background, so that it will adhere firmly and not crack or peel off?

I am building an operating-room 32 x 12 feet, side-light 12 feet wide by 7 feet high, skylight 12 x 12 feet, at an angle of forty-five degrees, facing the north. How should the curtains be arranged, and what

color should the walls be made under the light?

I think that if photographic stockdealers would keep the French weights and measures for sale it would be a great help in bringing them into use; for in spite of the many tables giving the metric equivalents, the weights would be much more simple and certain.

Another suggestion, and I am done. I think you might increase the circulation of your valuable journal by allowing your regular subscribers a discount equal to the premium paid for a new subscriber, providing they pay two or more years in advance.

H. M. G.

## PHOTOGRAPHY AS AN ART TEACHER.

FEW persons realize the vast amount of study, artistic taste, and judgment that has been expended upon photography to bring it, by a regular system of induction, from the dim and awkward results of the earliest productions to such artistic perfection as it has now reached. Indeed, this magic limner has attained such exactness and perfection in portraying every phase of nature, from its grandest creation to the most delicate forms of beauty, that its best effects excite within us the same sentiment of the beautiful, and all the pleasurable emotions we experience in beholding some of the finest works of art. There being no art galleries in this country, and consequently no general culture or knowledge of art principles, it seems that photography must be, for the present, the medium through which the æsthetic in our inclinations in the line of the fine arts must be gratified and cultivated. From its universal accessibility, I am induced to believe that it is doing more to elevate the public taste and appreciation of what is beautiful in art or nature, than all other influences combined. When good and bad pictures of this character are placed in contrast, what rustic will not note the difference? Whoever marks these differences is, in some measure, already a critic. I have watched this incipient discernment grow and develop into quite a critical taste, by closely studying the grades of merit of various

styles of photographs. Certainly no one of taste or discernment can visit the most prominent galleries of the country, such, for instance, as Anderson's of this city, without observing some real gems of art, requiring great skill, only acquired by long experience to produce, the sun being invoked to lend a hand in the creation, need not detract from the picture, or taste and judgment of those who control his subtle rays in portraying nature's ever-varying forms.—"H.," in Richmond, Va., Transcript.

#### SIMPLE INTENSIFICATION.

ARLY in the spring of last year I hit E upon the idea of purchasing a view lens, and I am happy to say to-day that the investment in a No. 8 Ross Symmetrical has not only proven a success financially, but also in awakening in me a desire to hunt up and study dame Nature's beauty and grandeur, an abundance of which meets our gaze at every crook and turn, thus inducing me to fly from the general routine of in-door work, at such odd hours as could be sacrificed for the benefit of body and mind, and incurring an addition to the list of registered negatives of a few which give delight and pleasure to me as often as I may come across them.

But here I am running into matters, although instrumental in leading to the results to be noted, are yet not explanatory of the heading above; therefore, to the point. As before stated, the lens was purchased, and I was inclined to make all I could out of the investment. A few negatives of popular places were made, and also a few samples of line drawings and maps in ink and colors placed on exhibition, the effects of which soon became apparent through the receipt of several good orders. But now came the difficult operation of "doing the best you can" with drawings on the common buff drawing-paper. Volume after volume of the Photographer and other works were subjected to careful search, and many of the processes tried, until finally I hit upon the following, which I do not recollect seeing in print before.

Make your negative as intense as possible in the first place, giving full detail to all parts; then if the general intensifier, pyro and silver, does not suffice, have ready at hand a three-grain solution of iodide of potassium, using in conjunction with the following solutions as described.

Take enough of this to flow your plate, which should be done once or twice before adding the solution

The solution should be flowed evenly and the action carefully observed. Having intruded on your valuable space longer than intended I will close, remarking that the general precaution of washing negatives thoroughly must be adhered to.

JOHN H. HENNING.

#### SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILA-DELPHIA.—The stated semi-monthly meeting was held Thursday evening, March 21st, 1878, the President, Mr. Ellerslie Wallace, Jr., occupying the chair.

After the reading of the minutes and dispatch of routine business, Mr. Dixon, on behalf of the Room Committee, reported that he had examined several rooms, but had not succeeded in finding any suitable for the Society.

In speaking of the instability of glass positives, more particularly those toned by gold chloride, etc., Mr. Bell stated that a positive toned with gold chloride before fixing would be permanent; but if toned after fixing it was liable to fade. In support of this, it was urged that a film acted upon by gold chloride was sensitive to light, a fact which had been taken advantage of in the intensification of negatives.

The Chairman remarked that this subject of fading was one in which he was deeply interested, and thought that this observation of Mr. Bell's might possibly explain the cause of fading of transparencies toned with the metallic chlorides. It was thought probable that the silver chloride formed in the

film by the action of the chloride employed in toning would change, particularly by prolonged exposure to strong light, as in the case of window transparencies.

Mr. Browne recommended the washed emulsion process for making transparencies, and said it was a strong point in favor of this method, that cliches so made needed no toning.

The meeting was shortly after adjourned.

Another meeting was held on Thursday evening, April 4th, the President in the chair.

After the reading and approval of the minutes, Mr. Browne, on behalf of Committee on Exhibition, reported that an exhibition was held at the Franklin Institute March 28th; number of tickets issued, 350; number of clichés shown, 132.

Mr. Barrington, Chairman of Excursion Committee, reported upon the proposed canal-boat trip.

Dr. John Nicol, of Edinburgh, was present, and was introduced by the President.

Mr. Browne exhibited a contact print from a negative  $3\frac{1}{4} \times 3\frac{1}{4}$ , together with a solar enlargement from the same. The definition, brilliancy, and general good qualities of the small negative were well preserved in the enlarged print, and elicited expressions of admiration.

The cause of the cracking of negative films was brought up, Messrs. Browne, Moran, Bates, Clemons, and Dr. Nicol taking part in the discussion. Dampness and changes of temperature, sometimes influenced by the quality of varnish used, were the causes to which this very serious evil were attributed.

In response to a query by Mr. Hewett, Dr. Nicol said, in Edinburgh the dry-plate workers had all adopted the collodio-bromide emulsion process, and gave preference to one having a slight trace of free bromide. Dr. Nicol thought it very doubtful if free silver ever existed in a workable emulsion. Instantaneous dry-plate photography seemed to lie in the direction of gelatino-bromide emulsion.

The meeting was then, on motion, adjourned.

D. Anson Partidge,

Recording Secretary.

#### OUR PICTURE.

IUST a year ago we were permitted, by the kindness of Mr. S. R. Stoddard, of Glens Falls, N. Y., to give our readers an admirable landscape study from some of his very beautiful negatives. By the same kindness we now repeat the lesson, at this time when those who are privileged to drop the focussing-cloth and the head-rest for awhile, and seek health and wealth out of doors with the camera, need examples of good work for their study. We know of no more careful and conscientious landscape photographer than Mr. Stoddard, and therefore none whose work is more worthy of study by his fellowcraft than his is. There are many photographers who are very familiar with all the rules for producing the finest results, but who are most careless in following those rules in their practice. Mr. Stoddard is evidently not of that kind, as his work eminently testifies. The man who produces the best work is he who, when going through his varied manipulations, suffers himself to become his own most exacting taskmaster, and who obeys every rule which he knows to be of service in securing the best result. There is nothing so ruinous in any work as to allow one's self to grow into the slip-shod, careless, and slovenly habit of ignoring the best rules for securing the best results, and in no branch of art or industry is this more true than in photography, and in no branch of photography is it more true than in the department of landscape photography. A recent writer has truly said: "With all our justly felt respect for labor, and our universal participation in it, there is yet a general and well-grounded dissatisfaction with its quality and results. We are all criticizing our neighbor's industries, and those of us who are not blinded by conceit are passing a still more severe judgment upon our own. There is a want of thoroughness and soundness very noticeable in the work of to-day, and the feeling of fear and distrust that creeps involuntarily into the minds of those who purchase it, in any form, speaks only too loudly of the lack of competence or fidelity in those who perform it.

"In every employment—it is not enough

that painstaking industry shapes the form—mind and heart must also infuse their own vitality into it, and make it glow with warm and earnest life. The best that is in us must enter into our work, if it is to be truly excellent. Not only mental power, but moral earnestness must permeate it. Not only thought, courage, patience, and zeal, but fidelity must animate it; not only fidelity to petty details, but that fidelity of soul to tis ideal, which in itself contains the essence of all superior labor. Whatever be the work, let an image of its highest excellence be cherished in the heart and made the mark at which all the powers are to aim.

"This will preserve labor from that deterioration which so frequently takes place in routine work. Labor, like character, cannot stand still; if it is not rising, it is falling; if it is not growing, it is withering. He who puts not his soul into his work; who cares only to get it done, that he may reap some external benefit; who cherishes no image of it as it should be; who feels no shame if it be inferior, no joy if it be excellent, cannot even keep it up to its present standard. Not caring to do more than will make it pass, he will gradually sink into doing less; not actuated by pure and high motives, he will become more and more a slave to low and sordid ones."

Let us take these remarks home to us, fellow photographers, and whether we go out into the fields with the camera, or stick to studio work, let us put our soul, ourselves, into what we do, and then continual progress and a real reward will follow our labor. We have seen and you have seen these truths exemplified in many more cases than one in our own beloved art. But we must not expatiate too much. What we have said has grown from a desire to see more first-class landscape photographers in our country, and a more general desire for landscape pictures created by photographers among our buying public. While, as a class, American photographers are up with any in the world, in the branch of landscaping we are much behind. We must all help if we would have it better.

In our issue for last May our good friend Stoddard gave us a chapter of most useful hints on the work in question. Read these over, and also get out your other books on the same subject, and brush up in every way you can, and perhaps many of you will be well rewarded for it.

But what of "Our Picture?" It is another bit from Mr. Stoddard's pet hunting-ground, "The Adirondacks," and is a lovely gem. As previously, we are obliged to give several subjects because of the difficulty of getting enough negatives of one subject for our purpose. All are equally fine, however, and all are of the best work of their author. He is most kind in allowing us the opportunity of bringing such studies before our readers.

How beautiful these little snatches from nature are when caught in her best mood. And what memories they bring up of long tramps in the drenching rain; of "dire confusion" of bone and tendon and muscle and flesh over corduroy roads; of narrow escapes from insatiable swamps; of the great ghostly monarchs of the Norway tribe who stand with arms outreaching as if to dispute your passage when you lose your camp-trail; of the long tales and the fullsome meals at even-time in camp, where he who tells the biggest story sleeps the soundest; of strawtick dreams and drowsy exultations over the gentle blue fly, who presents his bill in vain to your bagged soles; of watchful hours "under the cedars," alone, or lonely evenings, on the "runway," waiting for "my dearie" to pass by in her escape from the dogs; of onion fragrance (deer) and campfire; of the growth of girth one feels when able to say, "gentlemen, that is my deer;" of rafting and rolling off; of trolling for trout, and tangled lines, and the willingness with which you march up to your middle in mid-stream for one bright scaly fellow almost tired out, when at home you get cross if an accidental splash from a negative wets even your soiled sleeve. Yes, of all of these, and much more, do these gems remind you of your privilege of making as many of them as you please, and of your duty to look to it now that lenses, camera, chemicals, and all are ready for the rampage, and thengo it! Then when at night you sit down at your camp-fire and look about you, you will, with Jean Ingelow, enjoy the "scented wafts

of wind that come and go;" or say with her.

Hush! Hush! the nightingale begins to sing, And stops, as ill contented with her note; Then breaks from out the bush with hurried wing,

Restless and passionate. She tunes her throat, Laments awhile in wavering hills, and then Floods with a stream of sweetness all the glen.

. . . I know this scene by heart.

Wafting breezes eool

Come down along the water, and it heaves

And bubbles in the sedge; while deep and
wide

The dim night settles on the country side.

And now shall we leave these grand studies with you, hoping that when autumn comes to see from your summer's negatives many prints as fine as these. Such as will encourage us to offer once more a prize for landscape photography, with the hope of a lively and honest and worthy competition.

The prints this time were made at our own printing-rooms, on the Double Brilliant Albumen Paper, sold by Mr. G. Gennert, 38 Maiden Lane, New York, and known as "S. & M. Dresden." We find it most excellent and economical.

#### NEWS OF THE DAY.

M. JOSEPH PAGET, of London, has offered a prize of fifty pounds sterling for a dry process which will enable one to secure perfect results even after development takes place some months subsequent to exposure. Here is sufficient encouragement for considerable experiment, and we hope somebody will receive the award, and that this great desideratum in a dry process will be secured.

Some negatives of Mr. Gladstone, taken in wood-chopper's costume, were secured by a lucky photographer one day, a half interest in the product of which he sold to a stationer for five hundred pounds sterling. This could hardly be done in this country, for the lucky photographer would find before he had his prints scarcely upon the market, that some unprincipled brother had copied them, and as quickly as he could scattered reproductions in every direction. We wish

a code of morals could be established in this direction; the copyright law seems to offer no protection on account of its evasive nature.

A SHORT time ago, M. Gaston Plante, in causing a powerful electric current to enter a voltameter by means of a platinum electrode in a glass tube, observed that the glass was deeply corroded by the discharge. Following up this discovery, M. Plante has now communicated to the French Academy of Sciences a process of engraving on glass and crystal by means of electricity. The process consists in covering the plate to be engraved with a concentrated solution of nitrate of potash, put in connection with one of the poles of the battery, and in tracing out the design with a fine platinum point connected to the other pole. The results are said to be of marvellous delicacy. The battery employed by M. Plante was composed of fifty or sixty secondary elements. Round articles can be engraved by adding gum to the solution to make it adhere.—Telegraphic Journal.

COATING FOR WALLS .- Dr. W. Reissig, of Darmstadt, has, according to the D. Ind. Ztg., obtained patents for a solution intended for a coating or paint for walls, so as to protect them from dampness, prevent the formation of fungi, and permit their being washed even with boiling water without impairing the coating. The solution used for the walls of dwelling-houses, is composed of fifty grammes stearate of soda dissolved in one thousand grammes alcohol of sixty degrees. Beside this solution almost all alcoholic solutions of soapy substances answer somewhat the same purpose. These solutions can be colored by the admixture of various pigments not affected by the alcohol of the solution. For hospitals and stables a disinfectant can be likewise mixed with the solution. This coating does not adhere to surfaces painted with oil color, but on almost all others. Walls of limestone should first be hardened by means of baryta water, or of water glass before the application of the protecting solution.

DETECTION OF FREE SULPHURIC ACID IN ACETIC ACID, ETC.—Nessler proposes to cut filtering-paper into strips of thirty to

forty centimetres, and to dip the lower end into the liquid, which will be drawn up by capillary attraction, and evaporating above will then leave the paper, after twenty-four hours' contact and subsequent drying in a water-bath, of a brown or black color; the presence of a minute (less than 0.5 per cent.) quantity of sugar increases the delicacy of the test.—Phar. Cent. Halle.

SILVER CLEANSING SOLUTION.—Take of ammonium carbonate one ounce, dissolve in four ounces of water, mix this with sixteen ounces Paris white. A moistened sponge is dipped in the powder and rubbed lightly over the surface of the metal, after which the powder is dusted off, leaving a brilliant lustre.—Druggists' Circular.

CEMENT FOR AQUARIA.—A mixture of equal parts of shellac and powdered pumicestone, used warm, will cement glass, wood, and metal. Another serviceable cement is obtained by fusing flowers of sulphur, and adding finely powdered pumice-stone.—Pol. Notizblat.

DRY ROT.—The best preservative against dry rot is the following of Mr. Schwartze, who made millions by it, and by whose recent death the secret was revealed: One part oil of cassia, one part wood-tar, and one part common train oil; apply three coats on the reverse sides and on the ends of planks, floors, etc. In all probability oil of cassia played the chief rôle as preservative.—Ibid.

ICE MACHINES.—Carré uses water, ammonia, or ether, all of which have some inconveniences, which prevent them from being used as much as they deserve. Windhausen uses compressed air, but the machine is somewhat difficult to manage. Pictet (Geneve) uses anhydric sulphurous acid, which is very easy of application; it exerts at - 10° C. a little over one atmosphere, and at + 35° C. not more than four atmospheres' pressure. Sulphurous acid does not corrode the metal, nor does it dissolve the lubricating grease, which, by the way, is not necessary in every place, since the sulphurous acid acts itself as a lubricator. These latter machines make ice at an expense of 10 to 12 francs per 1000 kilos .-Ibid., 1877.

GILDING AND SILVERING OF GLASS AND PORCELAIN.—E. Hansen has patented the following process: Sulphur is dissolved in oil of spike lavender until it has a semiliquid consistence; this is mixed with an etherial solution of chloride of gold or of platinum, and the mixture evaporated to the consistence of paint. The surface to be gilt or silvered is then covered with the mixture, and the object carefully heated in a muffle, whereby the volatile substances are expelled, and the metallic gold or platinum fastened upon the glass or porcelain. The surface, thus metallized, is afterwards plated in the usual manner with solutions of gold, silver, or copper, and with the aid of a galvanic battery.—Chem. Centralbl.

ANCIENT COLORS. — The inalterableness of the colors of the ancient Greeks has always attracted the attention of scientific men. From chemical investigations made a number of years ago, I am convinced that all these colors are of mineral origin. Red ochre, red lead, and vermillion were the principal red colors; and the latter was prepared artificially by Kallias, of Athens, in the 92d Olympiade. The white colors consisted of carbonate of lead, a white argillaceous mineral from the island of Mylos, and sometimes of chalk. The blue and green colors contained copper, and were made by the aid of vinegar, wine, and salt. Bone charcoal was often used for pictures on account of its agreeable shade; wood charcoal was likewise employed. The yellow colors were mainly ochre and yellow oxide of lead. The gilding of marble and other objects was well known to the ancient Greeks, and was effected upon metals by the aid of mercury, and upon other articles by means of the white of eggs and of sarcocolla, the gummy matter obtained from Penœa mucronata.

PREPARATION OF PYROXYLON.—To obtain gun-cotton perfectly soluble in ether, Mr. Goddefroy recommends a mixture of 20 parts of sulphuric acid and 10 parts of potassium nitrate, into which, at a temperature of 56° C. (132.8° F.), 1 part of cotton is introduced and kept for seven minutes. The cotton should be previously freed from fat by boiling with solution of sodium car-

bonate containing a little potassa, and afterwards washing with water.—Zeitscher. Oest. Apoth. Ver.

TO REMOVE ODOROUS COMPOUNDS FROM MORTARS, GLASSWARE, ETC. — Schneider recommends to wash them with ground mustard and some water. A. Huber finds that ground flaxseed, almonds, and other oily seeds have the same effect. The odor of musk, valerian, phenol, etc., is thereby readily removed. A little hot benne or olive oil is serviceable for the cleaning of fish-oil bottles.—Schweiz. Wochenschr.

USE OF CLOTHES-WRINGERS IN PLACE of Presses.-E. Dietrich states in Apotheker Zeitung that he has been using clotheswringers for over a year, and prefers them to the presses usually employed, in which the margin of the presscake always retains a portion of the liquid. By straining tinctures, infusions, decoctions, etc., through a bag, and passing the latter through the wringer, all the liquid will be easily separated without coming in contact with the hands. Pulp of tamarind, etc., may be rapidly made, and with the use of little water, by passing the material first through a coarse hair sieve, and afterwards, inclosed in a suitable bag, through the wringer.

An excellent cement or paste, possessing great adhesive properties, and applicable for leather, wood, etc., is obtained by coagulating milk by means of acetic acid, washing the precipitated casein well with water, and dissolving it in a soda solution saturated in the cold, whereby a clean, thickish liquid is formed, leaving a glossy residue.—Phar. Handelsbl.

Orohellography.—I have the honor to present a special photographic apparatus for reproducing, on the same plate and in one exposure, the approximate panorama of the locality at which the operator is placed. There is no interruption in the image obtained of the horizon, but that which corresponds to the support of a mirror, which is a special adjunct of this instrument; it follows that two views, care being taken to place each time the support in a different position, will suffice to give the absolutely complete panorama that is desired. The instrument con-

sists of an ordinary camera, turned back ninety degrees, as if to photograph the sky, and of a circular mirror of parabolic profile, placed at a certain distance over the objective. This mirror has for its object to reflect the luminous rays emanating from different points of the horizon, by concentrating them upon the objective through which they pass, forming on the sensitized plate the image of the corresponding points.

With this apparatus we may obtain under the form of a ring the anamorphosic image of the horizon. The horizontal lines become naturally portions of the circumference, but the vertical lines are not distorted, and the angles obtained by joining the centre of the ring to various points of the image, are exactly equal to those formed by the lines which from the station terminate at the corresponding points of the horizon. This property makes the instrument an important one for certain surveys, in mountainous countries, for example. It is easy to understand that, by means of two or more panoramas, taken at well-determined stations, it is possible to transfer to a map the exact position of different summits, and to calculate their altitude.

At slight expense, a complete sketch of a survey may be thus obtained, the details of which are completed in the ordinary manner.—M. De la Noe, in the *Bulletin Belge*.

PROLONGED EXPOSURE.—Mr. Brauck recommends the following bath: Dissolve in a bottle and agitate,

Pour the filtered solution on the freshly-sensitized plate coming from the bath, and move the plate about to spread it, as is done in collodionizing, until the greasiness entirely disappears. Be careful not to use a developer that is too strong. With this preparation, plates may be exposed for a very long time without fear of their drying in places.—Bulletin Belge.

Mr. Husnik has just been making some curious experiments for the purpose of rendering bitumen of Judea more sensitive to

the action of light. For this purpose he mixed it with several substances of different nature, but especially with the alkaline bichromate. It was desirable to find, however, a liquid which would dissolve the bitumen resin and the bichromate. After having tried an aqueous solution of borax, caustic alkalies, or their carbonates, etc., he has given the preference to liquid ammonia. This is his mode of proceeding: He makes a solution of some resin (rosin, shellac, damar, or any other), in alcohol, and adds, besides, a little alcohol, so that the solution contains about four per cent. of resin. To this he adds a little bichromate of ammonia, which gives him a mixture that, poured on a metallic plate and dried, produces a highly sensitive film. The portions attacked by light become insoluble in the alkaline solutions in alcohol, and in a word, in all liquids which ordinarily dissolve all resins, whilst the other parts are readily dissolved. -Dr. Phipson in the Moniteur.

OUR journals publish the last formula given by the much-regretted A. Braun, of Dornach. It was for a bath for the carbon process, a sensitizing bath giving negatives of great vigor.

 Neutral Chromate of Potash,
 2½ parts

 Bichromate of Potash,
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 2½ "

 Water,
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The salts are dissolved in the water, then the alcohol is added; this last aids in the desiccation of the tissue. The author having found impurities in the chromic salts under the form of alum, or an excess of acid, recommends their recrystallization to eliminate these impurities.—Ibid.

At a meeting of the Amateur Society, of Liverpool, Mr. Palmer read a long paper on an improvement of the gelatin process, in which he makes use of oxgall to aid the separation of the films from the plate. He takes one part of fresh oxgall, which he places in eight parts of water, and dissolves in this mixture, with moderate heat, one part of ordinary gelatin. After filtration, the plate is slightly warmed and coated, after which it is allowed to dry. The emulsion is then poured in the same manner. The temperature should not exceed 15° C.

(59° Fahr.), during the drying of the film, otherwise it would become wrinkled. The wrinkles, however, will disappear when exposed to dampness.—*Ibid*.

MR. F. WILLIAMS has a singular method for restoring old nitrate baths. Having about three quarts of an old nitrate bath, which gave dirty and striated prints, he renovated it in the following manner, which he recommends as very economical: First, it is carefully neutralized with carbonate of soda or ammonia, of which but little is required; then it is poured into a capsule containing 360 e.e. (12 fl. oz.); that is to say that that quantity only is evaporated in one operation. The liquid is made to boil in the capsule, and when it reaches the boilingpoint a lighted match is brought in contact with the vapor that rises from the bath, which takes fire and burns whilst the ebullition lasts. The fire may now be removed, the flame due to the vapors of the alcohol and ether is gradually consumed, and finally Nothing now remains becomes extinct. but to filter. This operation is repeated with what remains of the bath, which is placed successively in the same capsule .--Ibid.

"I PROGRESSI DELLA FOTOGRAFIA."—Under this title, Mr. A. Borlinetto has just published a magnificent work, in which, in the most complete manner, he gives the different processes which to-day constitute the new art. The learned professor of the Paduan University has given in this publication a special development to the methods of printing with the press, and with fatty inks, processes that his own researches have much contributed to perfect. No work of similar importance has appeared in Italy since the publication of the *Plico del Fotografo of J. B. Sella* (1854).

It is said that a photographic chair has been instituted in the Roman college. Dr. Borlinetto possesses all the qualifications to fill it with honor.

#### . GOOD BOOKS.

Dr. Vogel's Handbook,		\$3	50
The American Carbon Manual,		2	00
Photographic Colorists' Guide,		1	50
Mosaics, 1878,			50

## THOUGHTS FROM THE ALMANACS.

No. 2.

(Continued from page 126.)

"ENLARGEMENTS on Opal Glass.—
Some choice and costly photographic works are frequently prepared upon large plates of opal glass. There are three different methods by which enlarged opalotypes may be produced:

"First, by means of a carbon print impressed from a large negative and transferred to or developed upon opal glass. This presupposes the existence of a large negative, which is made by means of any of the enlarging apparatus already described, from the small original.

"Second, by the dusting-on process. The plate of opal having been coated with one or other of the preparations of which several formulæ are to be found at the end of this book, is placed on the screen of an enlarging camera, and an image from a transparency allowed to fall upon it. Observe, that in this process the enlargement partakes of the same nature as the small cliché; that is to say, if the latter be a negative the enlargement will be a negative also, and if a transparency a positive will result. Having rendered the plate quite clean, it is placed upon a holder and coated with the 'dusting-on' fluid. The superfluous liquid is drained off at one corner, and the coating dried by a gentle heat. After this it is exposed without delay. Artificial light may be employed with excellent effect in making the exposure, more especially if, as is commonly the case with opalotypes, the degree of amplification be not great. The last picture of this kind that I saw produced received an exposure of four minutes by a magic lantern. After exposure, a large camel's-hair brush having a mop-like head, is charged with powdered carbon, or any other pigment, in a state of fine powder, and carried lightly over the surface. If the image do not appear under this treatment, allow the plate to remain in a damp cellar for one or two minutes, after which the powder may be made to adhere to the blacks with great tenacity. Judgment and artistic skill must be displayed in the development, so as to keep in

subordination the unimportant portions of the picture. Washing the plate in dilute hydrochloric acid completes the operation.

"Third, by collodion. I have already described in what manner a large transparency is produced for transferring to paper. If a plate of opal glass be substituted for the plain glass plate employed in that operation, the end is secured at once. But by making use of bromized collodion, either by the bath or emulsion process, this advantage is gained, that from the original small negative the enlarged picture that is to be produced may, at the will of the operator, be either a negative or a transparency; for, after development by the alkaline method (this is essential) the image, if a transparency may, if desired, be converted into a negative, and vice versa, by the application of dilute nitric acid to remove the image that has been developed, after which washing and the reapplication of the same developer in the light brings into existence a fine image of the reverse nature from that which was removed by the nitric acid. This image is amenable to the action of any of the toning processes."-Page 38.

An Experience.—"I think the majority of photographers carefully grind or scrape the edges of their glasses before using. I have been in the habit of doing so for some years, so as to save the cutting of my own and the

printer's fingers by the otherwise sharp edges; but subsequent considerable experience with unscraped edged glass has converted me to the conviction that the latter is better.

"The operator has very little handling of edges to do. The plate cleaner has a little, for he cleans generally in a 'vice.' Grinding the edges makes the glass retain rouge, albumen, or particles of collodion in plates to be used again, and not unfrequently causes many stains. The printers handle the negative most, and if they will cut their fingers, let them scrape the edges of the negatives after the varnishing."—Alfred Hughes, page 72.

Blistering of Prints.—"After toning and washing in clean water for a short time they are simply immersed in common methylated spirits of wine (not that sold as 'finest') till such time as they have a semi-transparent appearance, which will be, in fact, about three to five minutes. Now lift them out, press as much of the spirits out as possible, and then wash in a few changes of water; after that they are ready for the fixing-bath. After such treatment, blisters will be things of the past. Now, I should say to any one troubled with these photographic plague-spots, 'Try, and do not doubt till you have tried.'"—J. Stewart, page 78.

## Editor's Table.

PICTURES RECEIVED.—From Mr. G. M. ELTON, Palmyra, N. Y., proofs of "Panel" photographs from negatives sent to Dr. Liesegang, Dusseldorf-on-Rhine, for illustration of his magazine. Very fine. From Mr. Julius Hall, Chicago, Ills., a number of charming pictures of children, whose expressions are admirably caught by his new negative process, which he claims will beat the so-called "Lightning" method, and about which we may have more to say hereafter. From Mr. G. Weingarth, Shelbyville, Ind., some cartes of children. Nicely grouped.

AN AMERICAN PHOTOGRAVURE PROCESS.—Mr. C. Husson, Philadelphia, is one of our most industrious experimentalists, and has sent us

some admirable photogravure prints, which are quite up to those made by Goupil & Co., in Paris. The results resemble copperplate engravings, and the prints are really printed in the same way. The plates are made by a process similar to Mr. Woodbury's; photography being used for the negative making.

Messrs. B. French & Co., have sent us a  $14\times17$  group of nine officers, full figure, made by Black, with a No. 6 Euryscope lens, one minute exposure. It is a remarkable result, and speaks very highly for both lens and photographer.

REMOVAL. - Messrs. Wilson, Hood & Co.

are now comfortably and entirely fixed in their new store, No. 825 Arch Street, Philadelphia, directly opposite their old locality, and are better prepared than ever before for any amount of business. Their store is, we believe, the most conveniently arranged, handsomely fitted, and best lighted stock-room we have ever seen. The reputation of the firm is first-class, and their goods are selected from the best. They supply priced catalogues and estimates free.

"Sending Coals to Newcastle."—This is being done by Messrs. A. M. Collins, Son & Co., Philadelphia, who recently sent a large lot of card mounts to a photographer in England. We used to go to Europe for such things, but that day is now over.

FIRE!—We regret to learn that Mr. A. B. GARDNER, Utica, N. Y., lost his gallery and contents by fire on January 30th. Insufficient insurance, but enough, we hope, to start him well again.

"LA LUMIERE," the monthly magazine started in January last by A. Braun & Co., Dornach, is likely to be discontinued, the death of Mons. Braun having changed the plans of the company somewhat.

Our printer made a blunder in our advertising pages last month, by stating in Mr. Albert Levy's advertisement that all dry plates were made without emulsion. It should have read with my emulsion, as it reads now. We speak of Mr. Levy's plates and process elsewhere.

"The Lightning Negative Process."—We have nothing to withdraw from what we said in our Appendix on this subject last month, but in our next number we expect to be able to expose the whole thing. Experiments are going on, and with just such results as might be expected. A correspondent who is also at work, says: "You can say to the photographers that they would do well to go slow, for you know of some who are trying it, and who will give you a full report as soon as possible. In chemical effect, the results remind one of the first days of photography." A word to the wise is sufficient. Do not worry about June passing by. We will try to issue all the news early, and in good time. Trust us.

Another Removal.—Mr. J. C. Somerville, who is now the leading stock-dealer of the Southwest, announces that he is at last located in his new store, which is at No. 17 South Fifth Street,

St. Louis, almost opposite the old location. The new store is a four-storied stone front, with two show-windows; twenty-four feet wide, one hundred and thirty feet deep, with an alley in the rear, and a platform elevator. It is also well lighted, with the offices in the centre, packingroom on the north side rear, with every arrangement for cleanliness, order, and dispatch, the effort being to ship goods the day the order arrives. Mr. Somerville says: "Mr. J. M. MEAD, who conducted the business of the old firm of E. MEAD & Co., is now with us to help serve our patrons. He is quite popular and well known to many photographers in the West and South. Mr. HALL is also still with us." We wish for them all success.

Another Correction.—The table of iodides and bromides, given on page thirty-five of the February Photographer, would be just the thing, if it were not for two bad errors into which Mr. GIHON accidentally fell, in confounding the old and new atomic weights. I had it copied for me and placed in my work-room, for it gave me just what I wanted every few days without the trouble of figuring for myself. To-day happened to be the first time I needed its use, and I find that he has taken the old combining weight of cadmium and zinc, which should be respectively 112 and 65.2, instead of 56 and 32.6, as he has put them. This, of course, makes all his percentage, etc., wrong as far as these chemicals are concerned.

I do not take the *Photographer* to find fault with it (I get mine of BRYANT), but I thought you would appreciate this correction.

EDWIN H. LINCOLN, Cambridgeport, Mass.

Mr. Charles Haywood, a young photographer of Bourbon, Indiana, on February 22d, shot and fatally injured his wife, and then shot himself in the head, causing instant death. He is said to have been a sober citizen, and steady, and to have lived very happily with his wife. They leave a little child of ten months old. Temporary insanity is assigned as the cause of this act.

DEATH OF EUGENE DE LONG.—Mr. DE LONG died at the residence of his father, in Minneapolis, Minnesota, on the 10th inst., of consumption. He was a photographer of a good deal of promise, and was with the Centennial Photographic Company for nearly two years; always dutiful and attentive, and esteemed by all his co-workers and employers. We regret his early death.

## Specialties.

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D. H. ANDERSON,

RICHMOND.

# Philadelphia Photographer.

Vol. XV.

#### JUNE, 1878.

No. 174.

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BY EDWARD L. WILSON,
In the office of the Librarian of Congress, at Washington, D. C.

#### LIGHTNING!!!

T strikes in different localities almost simultaneously.

Only a few weeks ago the photographic world was startled by the announcement that the "Lightning Negative Process" could be had by the payment of, first, twenty dollars for the privilege of using it; and second, the purchasing of the compounds, to cost according to the amount of each ordered. See Anthony's Bulletin, current series, vol. 9, No. 3, March, 1878.

While this bolt was still hot, burning in some places, lo! here comes P. C. Duchochois, 826 Broadway, New York, with another "lightning bolt," called "The American Lightning Process," but with this difference: he charges nothing for the right to use, having as yet issued no license. His secrets are contained in two bottles, whilst the former process requires three.

The relative merits of these two processes I do not intend to discuss at present, for I know nothing about the latter beyond what is claimed by the circular now before me. The former I do know something about, having been present and witnessed all the varied experiments by a gentleman fully competent to handle any and all of the known (and some unknown, except by him, so far as photographic publications inform us) chemicals, compounds, and their constituents. It is now five weeks since the "license to use"

came to hand, which was followed in a very few days by the three bottles, in which was said to be "lightning." And lightning it was, sure enough, for every experiment took the patience out of a man quicker than lightning could begin to do it. As we went along I dotted down results, and up to this week only discouragements prevailed. Do not imagine that efforts were not put forth to make it a success, for I can assure you that the license was obtained and the compounds were purchased in good faith, with an eye singly to business, for photographers need not be told that he who can produce good results with very short exposure, has largely the advantage over the one who requires a long one; and to cut a fifteen second sitting down to one of five seconds, gives opportunities for catching frisky children and nervous adults, not to be slighted. Hence the animus for securing this immense accelerator. And that is why there was so great a disappointment during the four weeks' experimenting. I send you two cards taken of the same sitter, without allowing him time to change his position, or for the light to change; one taken with the regular formula of the gallery and the other with the "lightning" process; both were given the same time. The result shows the "lightning" undertimed.

Printed instructions came to hand after a time, which directed what to do under cer-

tain circumstances, which, when followed, produced something of the effects proposed, but it did not go far enough, and nothing but steady perseverance, backed up with a strong desire to make the process do what was claimed it would do, could ever have brought it out of the utter chaos it was in when received here. After a time, a second circular came to hand, containing more instructions, which, when applied, did much towards bringing out more satisfactory results. And yet, when compared with the old reliable formula of the gallery, it will not do to bet on.

The query may come, "Why did not the gentleman apply the right remedies if he is so competent?" The answer would be, "Because the secret was in the bottles, and not knowing the component parts, how was he to apply remedies without running the risk of destroying the 'lightning?' That would not do."

Do not understand me to say that there is no merit in the process. I only deny its rapidity as compared with the combinations that have been in constant use with this gentleman for years. The "Lightning Negative Process" has a great deal of merit in it. It produces first-class drapery, either light or dark, and a roundness very rarely excelled; and it is also rapid in a strong light, but it has no advantage over our regular working formula in any respect, and never produces as good results.

There is still another process offered to the photographers of the world that must receive more or less attention, and that will eventually drive out all others, as it is the only one that will be desirable as soon as it can be perfected; reference is now made to the "emulsion process." I have now before me a circular coming from A. Levy, 77 University Place, New York, wherein is given the strong points of what Levy terms "Emulsion Photographique Française," the New French Photographic Emulsion; rapid, reliable, without change. With all of these qualifications, what more can be desired? So it appears that we are about to enter upon a new era in the practice of photography; it is well. This was predicted by myself at the "Centennial N. P. A. Convention," at Philadelphia. I predicted

that the silver bath would be laid aside, and that impressions would be made in an instant of time. The emulsion is to accomplish it all when the developer is perfected. The developer of the "Lightning Negative Process " appears to be the only one of the three compounds, composing said process, that differs materially from other wellknown compounds. That, however, is a "good thing to have in the house," and it may be just the developer wanted to produce instantaneous work with the emulsion. Now there is but one drawback to the early fulfilling of my prediction, viz., the doing away with the silver bath, and the production of impressions in the camera in the "twinkling of an eye," and that is the manner in which the three aforementioned processes are presented to the photographers of the world. The secrets are all in bottles, and into them we must look for success; on them must we wholly depend. This leaves the perfecting of this greatly to be desired result in the hands of a few. There are but few competent to invent, while there are many who can improve on the invention of others, and, sometimes, the improvement is the saving clause. Cannot some plan be devised to bring more talents to bear upon these important advancing steps, in order to facilitate the result, without doing violence to the just dues of those already working? Suggest some plan that will secure justice to all, and hasten the time when "emulsion" will do the work of the camera instantane-I. B. WEBSTER. ously.

LOUISVILLE, May 4th, 1878.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 139.)
GENERAL CHEMISTRY.

AT last we come to that division of our subject which is called general chemistry, by which term we should understand in this connection a few general remarks with regard to the various elements and their combinations with each other. As of the elements, there is no mean number; a treatise on them, however short, if it endeavors at all to be plain, must be carried out according to some predetermined plan.

We shall first, then, turn our attention to that division of the elements called

Metalloids or Non-Metals.-Although, as has been said before, the line of demarcation between the metals and metalloids cannot clearly be defined, we shall avoid all trouble by placing each element in one class, and if it should happen to act sometimes as a member of the other class, the fact can easily be mentioned. Each metalloid shall be spoken of as in a free state, and then with regard to the other elements. The characteristics of the metalloids are that they are electrically non-conductors, with two exceptions; that when united with oxygen they show no tendency to unite with an acid, but on the other hand, unite with water to form an acid. In treating the substances which shall be regarded as metalloids, they may be divided into arbitrary classes, for instance: oxygen, hydrogen, nitrogen, and carbon may be called the atmospheric class, because these are generally found in the atmosphere; chlorine, bromine, iodine, and flourine are called the halogens (a word meaning "forming salt"), so called because with metals they form compounds similar to common salt. phurs, selenium, and tellurium, the combustible group (why, is evident), together with phosphorus, and last silicon and boron; and in this order we shall here speak of them.

Oxygen (atomic weight, 16; symbol, O). -This element, the name of which is formed from two Greek words, meaning producer of acids, is, when in a free state, a gas without taste, color, or smell. It has always been known as a perfect gas; but as a perfect gas is one that has never been made into a liquid, and, as in France, very lately, this and all other gases have been liquefied, either it and all other gases cannot be said to be "perfect," or some new definition must be given to the term "perfect gas." Oxygen was discovered by Prestley in 1774, its discovery marking the birth of modern chemistry. Of all the elements, it is probably the one most widely distributed, constituting by weight about one-half of the solid earth, one-fifth of the air, and eight-ninths of the water. Everything done by it may be designated by the term "oxidation," and this oxidation is accompanied by heat. In

rusting iron, for instance, the process is so slow that such a thing as heat would not be suspected; but when the iron is placed in pure oxygen and ignited, the process being rapid, the accompanying heat is great enough to melt the metal; so in a candle, lamp, or other flame, the oxidation is so rapid that we have heat and light (and these are but different degrees of one thing). Combustion being but very rapid oxidation, it is evident that "oxygen is the supporter of combustion." It is the "supporter of life," too, because the work of purifying the blood going on in the lungs is but oxidation, from which, by the way, all the heat of the body is obtained. As a substance that gains oxygen is said to be "oxidized," so one that loses oxygen is said to be Reduction is the reverse of "reduced." oxidation, and, as a substance may be raised from the metallic state to an oxide, or from a lower to a higher oxide, so one may be reduced from a higher to a lower oxide, or to the metallic state. The two great classes of oxides, the one of metals, the other of metalloids (the one forming bases, the other with water forming acids), have been previously mentioned.

Sparks of electricity have the peculiar property of changing oxygen into a gas called ozone (ozone meaning to emit an odor), having a peculiar odor, which may be observed sometimes during a thunder storm or near an electric machine in motion. Theoretically, the molecule of oxygen being O=O, ozone is supposed to be OOOO

Hydrogen (atomic weight, 1; symbol, H). -Hydrogen is derived from two Greek words, and means the "producer of water." It was discovered by Cavendish, in 1766. It is the lightest substance known; a gas without odor, taste, or smell; is inflammable, burning with an almost colorless, but very hot, flame. It becomes explosive when mixed in certain proportions with air or oxygen. The heat of its flame when mixed with the last-named gas is much increased, which fact is utilized in the oxyhydrogen blowpipe, by which means a heat surpassed. only by electricity is produced, or a light, by directing the flame against a piece of caustic lime, which becomes incandescent, surpassed only by electricity. It combines

in the least weight with the other elements, so it is taken as the base, and its atomic weight placed at 1. .

There are only two oxides of hydrogen known: water  $(H_2O)$ , and hydrogen peroxide  $(H_2O_2)$ . Water is formed whenever hydrogen is burned. Its properties are too well known to require description. Hydrogen peroxide  $(H_2O_2)$  never occurs in nature, and even when prepared artificially is very unstable, giving up on the least cause one atom of oxygen. On account of this it is quite a strong "oxidizing agent," and also a powerful "bleaching agent," but on account of the difficulty of preparation and instability when prepared it is but seldom made use of.

Nitrogen (atomic weight, 14; symbol, N). -Nitrogen (meaning "the maker of nitre," because it is a constituent of nitre) was discovered by Rutherford in 1772. It is a colorless, tasteless, and inodorous gas, slightly lighter than the air; is not directly poisonous, but not supporting life, it will kill by suffocation. It will not burn nor support combustion. The atmosphere, when freed from carbonic anhydride (CO<sub>2</sub>), water, ammonia, and whatever may accidentally be present, is found to consist of four-fifths of oxygen and one-fifth of nitrogen. These are mixed together. It is not a chemical combination, but simply a mechanical mixture. Besides oxygen and nitrogen, there are always present in the air, in varying proportions, carbon dioxide, ammonia, and aqueous vapor, and frequently volatile organic matter.

Nitrogen has five known oxides, as follows: Nitrous oxide (N2O), nitric oxide (NO), nitric trioxide (N<sub>2</sub>O<sub>3</sub>), nitric tetroxide  $(NO_2)$ , nitric pentoxide  $(N_2O_5)$ . Nitrous oxide, or protoxide of nitrogen (N<sub>2</sub>O), is a gas, colorless and odorless, but possessing a slightly sweet taste. It becomes liquid when under a pressure of eighty atmospheres, or when cooled down to eightyeight degrees below zero (-126° Fahr.). It supports combustion. A glowing chip, when plunged into it, bursts at once into flame. This is caused by the heat decomposing the gas into free nitrogen and oxygen, and the oxygen acting in its usual way. It may, however, be distinguished

from oxygen by its being soluble in water. Its peculiar properties when inhaled, and which give it the name of "laughing gas," are well known.

Nitric oxide, deutoxide, or binoxide of nitrogen (NO), a gas, colorless, but having a disagreeable odor. It does not support combustion as easily as the preceding, owing to the greater difficulty of decomposing it, so that if a substance but slightly ignited be introduced in it, it will be extinguished; but if it be in strong combustion, the heat will be sufficient for the decomposition, and it will burn with great rapidity and brilliancy. It is the most stable oxide of nitrogen known; has never been liquefied until most recently. It is but very slightly soluble in water, but has a great tendency to absorb oxygen, assuming then a dense red color, and being easily and completely absorbed by water.

Nitric trioxide, or nitrous anhydride (N<sub>2</sub>O<sub>3</sub>), formerly called "hyponitrous acid," a brownish-red gas, condensing at 0° Fahr. to a blue, volatile liquid. A large quantity of water converts this into nitric acid and nitric oxide (H<sub>2</sub>O+3N<sub>2</sub>O<sub>3</sub>=2HNO<sub>3</sub>+4NO), but a small amount into nitrous acid, or hydric nitrite, which is the acid corresponding to nitric trioxide (N<sub>2</sub>O<sub>3</sub>+H<sub>2</sub>O=2HNO<sub>2</sub>), which, however, in the free state, is very unstable, but which forms a very stable series of salts called "nitrites," made up on the formula MNO<sub>2</sub> (when M represents the symbol of any element, supposing it to be monivalent\*).

Nitric tetroxide, or nitric peroxide (NO<sub>2</sub>), formerly called "nitrous acid," a substance solidifying at 16° Fahr., which in melting forms a yellow liquid, changing to red as temperature increases, which boils at 72°. The vapors given of from it, and which constitute the greater part of "ni-

<sup>\*</sup> It must be remembered that whenever any method is given for forming any substance, it is only the theoretical way; and although, as a rule, the substance can actually be obtained that way, still it would not be the usual method in practice. The method for manufacturing or for making in the laboratory for experimenting, often differ from the way here given. If any one should wish to find any of these ways, they are in any manual of chemistry.

trous fumes," are at lower temperatures brownish-red, but become deeper as the temperature heightens.

Nitric pentoxide, or nitric anhydrite ( $N_2$   $O_5$ ). This substance, when prepared (and it is very unstable), is in crystals, brilliant, transparent, and without color. It melts at 86° Fahr., and boils at 113°. It has a very great affinity for water, the crystals dissolving with great heat, and producing nitric acid (HNO<sub>3</sub>) thus,  $N_2O_5+H_2O=2HNO_3$ .

Nitrie acid, or hydric nitrate (HNO<sub>3</sub>), when pure, is a limpid, colorless, fuming liquid, often rendered impure and darkened by the presence of some of the lower oxides of nitrogen; indeed, if obtained in the pure state and allowed to stand in the light, this decomposition takes place and the liquid loses its water-like appearance, gaining a yellow color. It is an "oxidizing agent," and also a "bleaching agent." It parts with some of its oxygen to another substance with ease. It freezes at —40° Fahr.; commences to boil at 363° Fahr. It forms with the metals a series of salts called "nitrates," which are all soluble in water.

There is but one compound of nitrogen and hydrogen, that is ammonia (volatile alkali or spirit of hartshorn, NH3), and is so called because it was first made from a substance called sal ammoniac, because it was first found in Libya, near the temple of Jupiter Ammon. It is a gas having an acrid taste, a pungent odor, and very alkaline in its action, turning vegetable colors blue and neutralizing acids. It has the effect of bringing tears to the eyes, is poisonous when taken in large quantities, simply on account of its irritating action upon the lungs, but when taken in small doses it is a stimulant only. It has a great affinity for water, two volumes of it being absorbed by one of that liquid. At the ordinary temperature (about 60° Fahr.), under a pressure of seven atmospheres it becomes liquid, and if cooled to-102° Fahr., it freezes to a white, crystalline, translucent solid. This property of liquefying under pressure, and the principle that a substance in passing from a liquid to a gaseous condition absorbs heat from the surrounding substances, is used in various machines for the production artificially of ice. Ammonia enters into a series of salts,

but as it acts as a metal it will be considered under that head.

Carbon (atomic weight, 12; symbol, C).— Carbon, which comes from a Latin word, meaning coal, is an element of vast importance. It is found very peculiarly, in a free state, in three distinct forms, which resemble each other in no possible way, and in its combinations it is very widely distributed in earth, air, and water.

Substances produced either directly or indirectly from the vegetable or animal kingdom are placed under that division called organic chemistry; and as carbon is a most necessary constituent of all these, it might be said that organic chemistry is that division of chemistry that treats of the compounds of carbon.

As said above, carbon occurs in the free state in three very distinct forms, namely: 1, diamond; 2, graphite or plumbago; 3, charcoal. The diamond, the hardest substance and most costly gem known, consists almost completely of pure carbon. It acts throughout as carbon; it will burn in an atmosphere of oxygen; in a most intense heat it swells up and becomes spongy and black, forming a sort of coke. What process in nature caused carbon to crystallize as the diamond has never been ascertained.

Graphite, or plumbago, does not resemble the preceding in any way; it crystallizes, but in a different form. It has a metallic lustre, a lead-gray color, is greasy to the touch, and is soft enough to make a black mark upon paper. It is used in lead pencils (being called black lead, improperly, as there is no lead about it), for making crucibles, as a glazing to powder, as a varnish, for lubricating machinery, and as a stove polish.

Charcoal, or amorphous carbon, is different from the preceding two. All forms of carbon that are not in a crystallized state come under this head. Wood charcoal, animal charcoal, and lampblack are all examples.

Although these three classes are so different from each other, they combine some characteristics. They were generally supposed to be infusible, but experiments have been performed, with heat produced by a very powerful electric battery, in which the carbon assumed a semi-molten condition, and

even others when it was to all appearances gasified. They all show but the smallest tendency to be effected by the other elements. This fact gives a reason for charging the lower parts of fence-posts to protect them from decay. At high temperatures, carbon combines with oxygen very rapidly, hence it is a "reducing agent," and used for such purposes in many ways, not only on the small scale for experiment and study, but on the largest for mechanical purposes.

There are two compounds of oxygen and carbon: carbonic oxide (CO), and carbonic dioxide (CO.). Carbonic oxide (CO) is formed when carbon is burned in a limited supply of oxygen. It is often formed in charcoal fires, but a very common and every-day example is that of a usual coal fire; the oxygen of the air entering from below unites with the carbon of the coal to form carbon dioxide (CO2), but as it passes up it takes another atom of carbon and beeomes carbonic oxide CO (CO<sub>2</sub>+C=2CO). This, when it reaches the surface of the coal, burns with the lambient blue flame seen on the top of coal fires. It is a colorless gas with an unpleasant odor, will not support combustion, but burns when ignited. It is poisonous even in very small amounts, and much diluted. It is slightly lighter than air, and is not absorbed to any extent by water.

Carbonic dioxide, carbonic anhydride, carbonic acid\* (CO<sub>2</sub>), is at the usual temperature and pressure a gas having a slightly acid taste and smell, being about one and one-half times heavier than the air, and quite soluble in water. It is without color, and when subjected to great pressure or low temperature it is changed to a liquid, and by continuing the process, even to a solid. When undiluted, it cannot be breathed; when diluted, it acts as a poison, not from any poisonous qualities of its own, but because, taking the place of life-sustain-

ing substances, it smothers the person. It neither burns nor supports combustion. From this  $\mathrm{CO}_2$  an acid called carbonic acid (which is only a theoretical acid, as it has never been actually separated), is formed by adding a molecule of water  $\mathrm{H}_2\mathrm{O}$  ( $\mathrm{CO}_2\mathrm{+H}_2\mathrm{O}=\mathrm{H}_2\mathrm{CO}_3$ ), so we have carbonic acid,  $\mathrm{H}_2\mathrm{CO}_3$ , which forms a very extensive series of salts called carbonates.

Carbon and nitrogen unite to form one compound, cyanogen, CN (a word from the Greek, and meaning the "producer of blue," because it is a prominent constituent of Prussian blue). It is a colorless gas with a characteristic odor, and poisonous if inhaled. Under a pressure of four atmospheres it is condensed to a colorless liquid, which freezes at 22° Fahr. The gas is very soluble in water; it is inflammable, burning with a beautiful purple flame. This substance acts as a non-metallic element. Like chlorine and hydrogen unite to form hydrochloric acid, cyanogen and hydrogen unite to form hydrocyanic acid (HCN).

Hydrocyanic or prussic acid (HCN) is a very volatile liquid, boiling at 80° Fahr., freezing at 5° Fahr. It burns with a flame much resembling, but slightly paler, than cyanogen. It is the most poisonous substance known. It occurs in many plants, in the kernel of the bitter almond, in the peachpit, in the juice of the tapioca plant, for example. With bases it forms a series of salts known as "cyanides." There is an acid called cyanic acid (HCNO)\* which forms salts called "cyanates;" but the salts are so unusual and the acid so much more unusual that no mention will be made of them. There are compounds of carbon and hydrogen, and of carbon with hydrogen, oxygen, nitrogen, and other elements, of all forms and without number. These come under the head of "Organic Chemistry," and a few (a very few) of them may be there spoken of.

(To be continued.)

<sup>\*</sup> The reader will notice at once that, according to the definition of an acid as given before, CO<sub>2</sub> being without hydrogen, is not strictly an acid, and carbonic acid cannot be a correct acid. This is very true. The point is well taken, but the name carbonic acid was given to it when it was not incorrect, and it thus obtained such a hold that it may never be possible to change it at this late date.

<sup>\*</sup> It has become the custom to use Cy as a symbol for cyanogen, in place of CN, so that in books that make use of it, in place of hydrocyanic acid HCN, we would find hydrocyanic acid HCy: and for cyanic acid, in place of HCNO, we should find HCyO, and so on, wherever CN would occur we would find Cy.

[Translated for the Philadelphia Photographer.]

# REPRODUCTION OF DRAWINGS, PLANS, ETC.

OBTAINED DIRECTLY IN DARK BLUE LINES

UPON A WHITE GROUND, PROCESS H.

PELLET & CO.

THE sensitizing liquid for this process is composed of

According to the kind of paper and the required sensitiveness, the above quantities may be modified. The oxalic acid may be replaced by several other vegetable acids. If the paper is not sufficiently sized, add to the liquid gelatin, isinglass, gum arabic, dextrin, etc.

After drying, the paper is to be kept away from the light, and in this condition may be preserved indefinitely.

The sentiveness of this paper, which bears the name of Cyanofer, is very great. To reproduce a plan made on transparent paper, expose under this last a sheet of sensitized paper. In summer, and in the sun, it requires from fifteen to thirty seconds to decompose all the portions not protected by the black lines. In winter the exposure may vary from forty to seventy seconds. In the shade, in clear weather, the exposure varies from two to six minutes, and in foggy, rainy, and snowy weather the operation requires from fifteen to forty minutes. It is evident also that there will be differences in the time of exposure during the same day, that is to say, from morning to night. In the light the maximum salt of iron is reduced to the condition of a salt of protoxide of iron. These last are no longer colored by a solution of yellow prussiate of potash, whilst the parts protected by the lines may be colored. After exposure to the light pass in the bath of prussiate (from fifteen to eighteen per cent.); the drawing immediately makes its appearance of a blue color. If the exposure has been sufficient, the paper may be allowed to remain a certain time in the developing bath; the lines are then stronger. the contrary, the exposure has been a little weak, the print is kept for a shorter time in

the prussiate, to avoid the blue spots arising from those portions of the iron salt which have not been completely reduced.

Wash in abundant water. Finally remove the salt of the protoxide of iron by a bath at eight or ten per cent. of ordinary hydrochloric acid. The ground of the print whitens; the lines become darker.

If the lines of the plan which is to be reproduced have been made with an ink which is very black, or containing yellow, the time of the exposure may be prolonged, as under these dark lines there is no danger of the sensitized substance being attacked. In this case the prussiate development is rather long, but the blue color becomes very intense, and, when the paper is dry, the reproductions are often black instead of blue. After the acid treatment wash and dry.

It is preferable, for a good reproduction of a plan, to only place the conventional tints on the tracing after the photographic printing, as the tinting on thin papers often produces wrinkles. On the other hand, if the tints are dark or antiphotogenic, such as yellow, brown-yellow, red-brown, etc., upon the reproduced print, we have blue portions more or less intense corresponding to these tints. Should there be any reference figures or letters in these tints, they are often hidden by the blue color.

This direct positive process has the advantage of giving very quickly a reproduction which may be tinted and modified as desired.—Bulletin Belge.

# A CHAT ABOUT AN OLD DRY PLATE.

ONE of our subscribers has sent us quite a curiosity in its way, namely, a print from a tannin dry plate, exposed seven years after it had been prepared.

The picture, in detail and general quality, is quite as good as much of the "dry" work we have seen from freshly prepared plates, and rather tends to subvert the theories of those who have always held that "dry plates won't keep." Our correspondent gives us a detailed history of this old dry plate, which is so interesting that we append it.

"Yours of the 16th inst. received; will

send photograph to-day. You will observe that this picture is of dark or variegated *marble*. It was made about four weeks ago; there was some snow at the time.

"These plates were coated seven years ago the first week in April. They were the first and only dry-plate work I have done, until quite recently. They are 11 x 14 in size, and have been very much misused, that is, they have been exposed to light at different times. About eight months ago I wanted some 11 x 14 plates, and opened this box in my room, about ten in the forenoon; the light was quite sunny at the time. I found them in such good condition that I forebore to clean them off, and have kept them; and this work I send you is made from one of those plates.

"When the plates were coated, the formula of Chas. W. Hull was followed to the letter. Of course, you will agree, any new process wants some practice before one can expect in any way to perfectly work it. But I did not experiment with it; only coated as above stated, and worked it with very good success. This plate had an exposure of ten minutes with 1-4 inch opening, a view tube I purchased of Chapman & Wilcox some twelve years ago; it is half size. The development was just as easy as the wet process, the plate developing quite as free and as rapidly. The developer was made and used as per formula, at least as near it as possible. Of course I did not prepare so much in quantity as formula, but as much as I needed for one plate, but in due proportion to formula.

"The negative is a rapid printer in the sun. We have printed upwards of a hundred prints from it. The one I send is pretty strong. If I had used glasses to focus with I should have succeeded in getting it a little sharper; but I forgot them, and my eyes are somewhat impaired by hard usage, as I have to use them in focussing, in retouching, spotting, reading, and writing. Let me have a furlough of a few weeks outside, and I can see about as well as ever. This retouching is terrible for the eyes and nerves.

"This formula was published in your journal in 1867, Vol. 4, No. 37, page 36. When my plate developed so readily I was more than astonished, as I have read so much pro and con about the dry process and the keeping qualities of dry plates. In view of the many questionable points about the dryplate process, and the difficulties of working it successfully, and so many different agencies in different formulæ, and the length of time these plates have been coated, the different exposures of these plates to light, you may think it would astonish the most successful dry workers. I thought the subject worthy of notice; perhaps it would call out something advantageous to the fraternity if it could be published and commented on by some more experienced in that line of work.

"JAMES O. MERRILL.

"RUTLAND, April 18th, 1878."

#### THE ROBE AS PHOTOGRAPHED.

UST at hand are three pictures of friends, family of gent and his wife and little girl, "taken same day," the letter says. The remark was needless, for the gent is standing with hat on head, cane in hand, overcoat on arm, leaning against a costly tiger-skin robe backed by a curtain and some richly carved furniture. The lady is in ball-room costume, leaning against the same robe. little girl is perched on a most unnamable kind of antique piece of furniture, and also leans against that same robe. The pictures are said to be finely executed (killed in style by the robe and the ripped "ragged edge" of the carpet that shows in all). But where among our household goods, past or present, do we ever see a robe, unless we go riding, and mostly sleigh riding at that. Carved furniture may pass if it resembles anything namable; but unless we are taking pictures of the "hoss jockey," let us have a rest on the robe. Or will some one prove to me why it is so highly valued and extensively used? If so, I will be much pleased to receive the lesson.

> J. PITCHER SPOONER, Stockton, Cal.

GIHON'S PHOTOGRAPHIC COLORISTS' GUIDE has had a most unprecedented sale, the dull times notwithstanding. \$1.50. See advertisement.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 6.

The manipulation of the Chemicals, and all that pertains to "Dark-room" work.

SINCE the operator is now supposed to be possessed of all of the preparations essential to his success, he should proceed at once to assure himself of their proper condition.

"Before taking a bath solution into general use it should be tested. This is best done by immersing in it a plate covered with collodion. When fully sensitized, the plate should be placed in the dark slide, and then, for a second, half the plate exposed to white light. It should then be developed. A trace of fog on the part on which the light had not acted, will denote that a slight addition of nitric acid is required, or that an organic or other foreign substance is present. Should the plate, on withdrawal from the bath, show signs of countless small excrescences, it is probable that the latter is These small excrescences, over-iodized. after development, will be found, on fixing, to entirely wash away (the iodide being formed on and not in the film), leaving round transparent spots on that part of the film which had been exposed to the action of the light. The transparent spots or pinholes are caused by the interception of the light from the iodide of silver in the film, by the iodide deposited from the bath solution. In this case an ounce of bath solution should be added to an ounce of water. The nitrate of silver solution becoming weaker by this addition, an emulsion of iodide of silver will take place. This should be filtered out, and enough crystals of nitrate of silver added to bring the bath back to its proper strength. If the plate, after fixing, shows signs of pinholes without the excrescences being previously visible, the bath is underiodized. In this case more iodide of potassium should be added.

"A line across a plate, seen after sensitizing, denotes a stoppage in the motion of immersion.

"Lines in the direction of the dip, are generally caused by the bath being too alcoholic. (Each time a plate is immersed the water absorbs a percentage of ether and alcohol.) The excess may be removed by raising the temperature of the solution to about two hundred degrees. The alcohol is driven off in vapor at that temperature, whilst the aqueous solution remains behind. The solution may also be boiled down to half its original bulk, and be made up to the proper strength by the addition of purified water. These lines may also occur through the use of a collodion with a very repellant film. This may be remedied by shaking it up with carbonate of soda, and decanting from the residue, or by the adding to it one or two drops of water.

"A scum on the film may be caused by the use of a bath containing too much nitrate of silver. Test its strength, and add water if requisite, filtering out the iodide that may be precipitated.

"A bath carefully used will rarely get out of order. Sometimes, however, by accident, it may become contaminated by foreign matter, and the negatives be poor, flat, and in some cases, useless, through fog on the shadows. To render the bath fit for work, resort should be had to the action of sunlight (after neutralizing the acid with carbonate of soda or freshly precipitated oxide of silver). This is the best, and probably the only legitimáte cure for a bath that gives negatives of the foregoing description, except evaporating the solution to dryness and fusing the nitrate of silver. The addition of permanganate of potash (permanganate, fifteen grains; water, one ounce; the solution to be added to the bath until a faint permanent pink color is given), has also been recommended. It is at the best a doubtful cure.

"There may be another cause of flatness in a negative, viz., the bath being below its proper strength of nitrate of silver. A very delicate method of testing for its strength is as follows: Measure with a pipette (or dropping-bottle) one hundred drops of the solution to be tested; rinse the pipette, and drop from it, into the silver solution, a solution of salt and water (thirty-five grains to the ounce), until no more precipitate of chloride of silver is seen to form. The number of drops added to the silver solution will be the number of grains of nitrate of silver in the

ounce of bath. It will be found advantageous to heat the solution to be tested, as the last formation of chloride of silver will be more distinctly visible.

"Fog being one of the commonest defects in a negative, it will be useful to point out the causes that may bring it about.

"Over-exposure is one of the most ordinary, particularly when working with newly-iodized collodion.

"The contamination of the nitrate of silver bath by organic or foreign matter, is another frequent cause of fogging.

"It is easy to account for the organic matter in the bath, the dust and other impurities that float in the atmosphere of the dark-room being one source. Distilled water, as commonly sold by chemists, may also contain it, as their stills are frequently used for the distillation of essential oils, and the remains of these are carried into the water. A bath made of impure guttapercha may also account for its presence, as will the wooden case of a glass bath, provided the bath solution happens to touch the wood while being poured in or out. In all these cases, sunning or evaporating the solution are the most effectual remedies.

"Alkalinity of the bath will be certain to cause fog; as will also acidity, if plain iodized collodion be used.

"Diffused light in the dark-room, in the camera, or through the lens, will cause a foggy picture.

"Vapor of ammonia, the product of the combustion of coal-gas, sulphuretted hydrogen, are also inducive of fog. These vapors may be detected by their smell.

"The omission of the acetic acid in the developer (or the presence of too small a proportion) will cause the evil, as also a very high temperature in the dark-room.

"Many filter-papers contain iron, and other impurities, which may induce fog.

"For the detection of the cause of fog, first try reducing the exposure; if this fail, try the bath for acidity or alkalinity. If the bath be of the right acidity, coat a plate, and having sensitized it, keep it for two or three minutes in the dark-room. Proceed to develop as if it had been properly exposed. Fog will arise, supposing no hurtful vapors be present, either from organic mat-

ter or from diffused light in the dark-room. Try another plate, exposing it in an absolutely dark room. If no fog be apparent, the bath is at fault. With a new bath, it may be that there are vapors present which cause fog. Should fog, however, still be not apparent, coat another, and sensitize as usual, place it in the camera, and draw up the slide, without removing the cap. Develop as for an exposed picture.

"If fog be present, diffused light is admitted into the camera; if absent, it is probable that the fogged negative was due to the bad lighting of the subject, or to diffused light through the lens, as in the case in which the sun is allowed to shine directly on the glasses.

"To render a slightly fogged negative fit for printing, apply a solution of iodine and iodide of potassium, and then proceed to dissolve away the iodide of silver formed with cyanide of potassium. With one or more applications of the iodic solution, the veil may often be removed without injuring the density of the negative. Another method of reduction is by using the following in lieu of the iodic solution:

"Saturated Solution of Perchloride of Iron, . . . 1 drachm. Water, . . . . 1 ounce.

This is floated over the negative, and, after washing, the cyanide is applied. By this method the deposit on the shadows seems to be more attacked than that on the lights; it is consequently to be preferred.

"The chloride of silver is dissolved away by the fixing agent; very dilute nitric acid may also be applied at once to the film, but this requires very delicate handling. The acid should be diluted with ten times its bulk of water.

"When the bath is too acid, hard negatives, wanting in detail, often result. The acidity may arise from the use of collodion which has liberated iodine, and acidified the bath solution. They may also result from the developer.

"Transparent flashes and curtains are generally caused by the free nitrate of silver drying on portions of the plate, owing to the length of time elapsing between taking the plate out of the bath and developing it.

"Negatives are particularly liable to this

defect if the bath be at all old and alcoholic. Careful draining, using damp blotting-paper at the back of the plate in the slide, and other obvious precautions, should be used.

"Opaque markings, like lines, may occur through the bath solution collecting and running down the plate, particularly if the plate be not fully sensitized. The rivulets of bath solution complete the sensitizing of the plates in those portions alone, hence the image is stronger at those parts.

"Horseshoe-markings, of about the size of a small pearl button, may occasionally be met with. They are generally to be discovered when a collodion is used which appears opalescent after sensitizing. They arise from the reflections from the small drops of bath solution that accumulate on the back of the plate. It is needless to enter into the exact cause of the horseshoe form; but it can be rigorously demonstrated as resulting from the shape and motion of the drops. By carefully wiping the back of the plate before placing it in the slide, this trouble will cease."

"Collodion forms the basis of the photographic negative pictures; it is for the photographer of more importance than the paper for the draughtsman. It not only acts mechanically by fixing the sensitive film to the glass, but also chemically by containing besides the indifferent pyroxylin, a whole line of products of disintegration, which have a material influence on the chemical and physical properties of the film.

"The care of the collodion is consequently of much importance for the photographer who desires to secure equal results always.

"The changes which iodized collodions suffer, manifest themselves by a change of color, first yellow and then red, and by a decrease of sensitiveness. In these changes, free iodine, which remains dissolved in the collodion, separates from the liquid, and gives rise to the formation of free nitric acid in the bath, which will impair the sensitiveness of the plate.

"The salts of cadmium have the least tendency to turning the collodion red, while the salts of ammonium have the greatest. While the collodion turns red, it becomes more fluid, and finally so limpid that it does not secure a homogeneous or tenacious film.

"It has been recommended to shake collodion which has turned red with carbonate of soda, respectively with metallic cadmium, and to let it settle. These bodies will absorb the iodine and restore the bright color of the collodion, but at the same time the plates will have a tendency to fogginess, probably in consequence of the formation of alkaline salts, which are partially soluble in collodion.

"It is much preferable to mix the red collodion with cadmium collodion. The latter will remain white for months; it is somewhat thick, and by mixing it with red collodion we will get the desired consistency and color.

"Any one who works with cadmium collodion exclusively will very seldom or never complain about red collodion. For other mixtures which have a tendency to turning red, it is recommended to preserve the plain collodion and the iodizer separately. In this case the fluids are mixed in such quantities as experience has taught will be consumed in a short space of time.

"Besides the disengagement of iodine, a change in the proportion of alcohol and ether takes place, as well as the introduction of impurities, such as dust, etc.

"The excess of collodion which has been poured on the plate, is generally returned to the bottle. But this excess has lost a part of its dissolving media by evaporation, and of course more of the fugitive ether than of the less fugitive alcohol.

"Hence what is poured back into the bottle is thicker and richer in alcohol. With yery careful management this does not matter much; under favorable circumstances a bottle of collodion can be used, all but a very small remnant. If this remnant should be too thick, it should be diluted with onefourth or one-third of a mixture of three parts of alcohol to five parts of ether.

"But much more annoying than this loss of fluidity, is the accumulation of dust and other impurities. Small traces of dust are washed into the collodion-bottle with the excess which is returned from the plate; with every plate this quantity is increased, and finally the collodion will work uneven.

"This is more frequently the case when travelling, where we have to contend more with dust than at home. The annoyance is increased with large plates.

"The rough corners of the plates exercise a very injurious influence, as they form receptacles for dust and other impurities, which is only too easily overlooked and returned to the collodion. It happens quite frequently that the grooves of the plateboxes are filled with impurities, all of which help to spoil the collodion.

"All these evils can be avoided by returning the excess of collodion to a separate bottle. This collodion is by no means useless; it should be left to settle for a week or so, and the pure liquid can then be decanted and used.

"That the neck of the collodion-bottle should always be kept clean is a matter of course. A bell-glass should be placed over the stock-bottle. When no special collodion-bottle is employed, the neck of the bottle should be kept perfectly clean by wiping it with the finger, and the first few drops should be thrown away before pouring the collodion on the plate. The bottle should be corked immediately after the plate has been collodionized.

"When the plate is taken out of the bath, should the film appear much less opaque at the end at which the collodion was poured on than at the lower end (the portion of the image developed on these semi-transparent parts would be very feeble), first, the collodion has been allowed to set too long; second, it has been prepared with too highly rectified solvents, and ether in excess; or, third, there is alcohol in excess, causing the plate to dry at the top before it has set at the bottom.

"The remedies are in the first case apparent; in the second, leaving the bottle of collodion unstoppered till the necessary amount of ether has evaporated, making up the quantity with alcohol, and then adding one or two drops of water to the ounce; in the third case, the addition of a drachm of ether and a quarter of a grain of iodide of cadmium to the ounce of collodion.

"The next defect that may be noticed is the collodion showing opaque markings, after sensitizing, at the corner whence it

was poured off. This may be caused by too much iodide and bromide in the collodion, in which case plain collodion should be added; or, it may be caused by the collodion being too alcoholic. If the film be allowed to set longer before immersion in the bath, it is probable the fault will be corrected. It sometimes happens that this defect is exaggerated, the iodide from the film (and the film itself, in places) leaving the plate entirely. This is caused by not allowing the collodion to set sufficiently; the water in the bath acts on the pyroxylin before it becomes gelatinous (from the evaporation of the ether and part of the alcohol), and the cotton is precipitated. The last remedy given above must be resorted to.

"It sometimes happens that there are markings in the film, giving it the appearance of a fine net work or crape. This arises from the use of too gelatinous a sample of collodion, or from a strong cadmium bromo-iodizer. Solvents, too, diluted with water may also cause this defect. The remedy in the former case (in which the plain collodion alone gives this structure), is to add a more limpid sample to it. If caused alone by the latter, keeping will probably rectify the evil; whilst if the result be from both causes, the addition of a limpid alkaline-iodized collodion is recommended.

"Should the developed image appear weak, and the film be opalescent, it is probable, if the collodion be in fault, that it is deficient in pyroxylin, either from sufficient not having been at first added, or from the property that old collodion acquires of dissolving an extra quantity.

"A lack of half-tones in the image is caused by using a collodion whose pyroxylin has been made at too high a temperature, or by the iodine in it being liberated to excess.

"Should the film split on drying, it is probable that the collodion used contained to much ether. Pyroxylin made with too strong acids will also cause the evil. Mixing with another sample of collodion will probably be the best cure.

"If the pyroxylin be made in weak acids, the film will generally adhere to the plate; but if a gelatinous kind be used, falling away will frequently occur. "A scum floating on the bath may denote the use of a too highly bromo-iodized collodion; if this be the case, the latter should be mixed with a small quantity of plain collodion. Acetate of silver in the bath is likewise a cause of scum. It should, in all cases, be filtered out, or be removed by drawing a strip of clean blotting-paper along the surface of the bath solution.

"An underiodized collodion will cause the developed image to appear flat and lacking in density (if it arise from the collodion). Try adding an extra grain of iodide of cadmium to the ounce. If the collodion be too highly bromized the same result will occur."

"The development of a negative requires both mechanical skill and a keen perception of the requirements of the occasion.

"Lines may occur on the negative by the stoppage of the developer when poured over the exposed plate. The stoppage is generally the result of carelessness, or of the drying of the film after removal from the bath. In the latter case, more of the developer must be taken to enable the plate to be properly flooded. The free nitrate of silver having partially dried on the film, but little will be carried away by the developer over the edge of the plate. The defect may also arise from the repulsion of the free nitrate of silver on the film from the developer, either through excess, or the contrary, of alcohol.

"Lines may also be caused by leaving a small quantity of water in the developingcup. This will not readily mix with the alcoholic developer, and will cause development to be delayed on portions of the negative.

"That the image is poor and flat may arise from washing off the free nitrate of silver from the plate by the developer; from the use of too strong a developer; or from the bath or collodion, as already explained.

"In addition to negatives becoming hard from the collodion or bath, they may have the same defect from the use of a weak developer; from one with too much acid in it; or from under-exposure. The first two causes may arise from the protosulphate of iron changing to persulphate. "When the developer refuses to flow evenly over the film, and seems to be repelled by it, either too much or too little alcohol has been added.

"A scum on the developer, formed during development, may denote a want of acetic acid."

"The chief defects that arise through intensifying, are those which may also occur in development. Fog and a red deposit are chiefly to be anticipated. The former may occur before fixing if the pictures be overexposed; the latter, both before and after fixing, by the addition of too much free nitrate of silver to the intensifier; or again, after fixing, by the imperfect washing of the film before the intensifier is applied. The red stain will often yield to treatment with a solution of acetic acid and water (half to half).

"It should be noted that the larger the amount of silver added, the more rapid will be the intensification; but the half-tones will not be brought up proportionately to the high-lights. The smaller the quantity of silver used, the greater will be the comparative force given to them, and the longer time it will take.

"Thus, a negative lacking in contrast may be corrected by using an intensifier with large, and one too rich in contrast with small doses of silver.

"When the mixture of pyrogallic acid and silver becomes turbid, it must be rejected, and a fresh solution poured on.

"Sometimes a bluish precipitate will form in the shadows; when this takes place it is an indication that the intensifier is not sufficiently acid.

"Intensification with iron is equally as rapid as with pyrogallic acid. When using the former, however, it is necessary to use about twice as much silver.

"With landscapes and portraits, intensifying is comparatively easy work. With reproductions of drawings, plans, or manuscript, it requires more time and great care. The fine lines become easily veiled or the plate unequal.

"The beginner must remember that the intensifier makes the plate only denser and richer in contrast, but does not add to the

details. It is, therefore, useless to try to improve an under-exposed plate by intensify-

ing it.

"When the intensification after fixation is attempted, it is essentially necessary to thoroughly wash the plate before application of the solutions. Any neglect of this precaution will invariably produce a spotted negative.

"A number of peculiar metal salts have been proposed in connection with the latter method, which, with the metallic silver of the picture, cause peculiar decompositions, and form pictures, which offer great resistance to the passage of chemical rays. These methods are mainly of advantage in the production of negatives for photo-lithographic

or kindred processes.

"The defects caused by fixing are few in number; the chief is that caused by the cyanide of potassium eating away the half-tones, or the washing off being too long delayed. If strong cyanide be used, and it be allowed to stop in its flow over the plate, a weak line may become apparent. A film splitting after varnishing, may often be traced to the use of hyposulphite of soda as a fixing agent, and a subsequent imperfect washing."

[Mem.—I have thought it better to present the present series of scraps in a more continuous form than usual. At the same time, I wish to give the credit of their original authorship mainly to Captain Abney and Dr. H. Vogel.—Gihon.

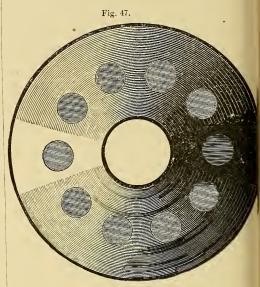
## CONTRAST.

Simultaneous Contrast between "Light" and "Dark."

If we place a given hue, a medium gray, for instance, upon two different grounds, one of them lighter, the other darker than the gray itself, the latter will assume a different appearance in each of these two cases; that is to say, in the first case it will look darker, in the second lighter. This experiment may be very conveniently made with crayon papers of different shades. If we cut two pieces of moderate size from a sheet of such paper, and then lay one of them upon a lighter, the other upon a darker

sheet, it will appear almost incredible that both pieces were cut from one and the same sheet, and the fact that they are really of one color can only be realized by placing them side by side.

The same phenomenon can be observed very plainly in Fig. 47. Ten small disks, all shaded exactly alike, are here placed



upon a larger disk, the sectors of which differ in shading. The fact that all the small disks are in reality perfectly alike can easily be ascertained by covering the figure with a piece of untransparent paper into which two small holes have been cut, so that two of the disks can be seen through them. But, nevertheless, one half of these small disks appears to be considerably lighter than the other half.

Another remarkable fact to be observed is this, that the disk, the true brightness of which exceeds that of the ground only by a very little, looks almost as bright as that upon the perfectly black sector, while in the same manner a disk upon a ground only slightly brighter looks almost as dark as the one upon perfectly white paper.

It is shown, therefore, that the small disks have suffered a change of brightness by contrast with the ground, and that the smallest perceivable difference in brightness between the two surfaces produces almost the same effect of contrast as that produced by the greatest contrast which can be conceived.

This remarkable "effectiveness of small differences" is of very great importance in painting; while from a scientific point of view, it teaches us that the phenomena with which we are now dealing are of quite a different nature from the phenomena of successive contrast.

# SIMULTANEOUS CONTRAST A DECEPTION OF JUDGMENT.

The successive contrast asserts itself in a striking manner only when there is a considerable difference in brightness and in color between the ground and the object upon which the eye has been fixed, and it increases in vigor with the increase of this difference. Furthermore, to obtain the successive contrast, it is absolutely necessary to fix the eye upon the object for some length of time, while the simultaneous contrast, as shown by the illustration just given, asserts itself at first sight. In this case, therefore, the idea of fatigue cannot be entertained, and we must consequently look elsewhere for an explanation.

The contrast between "light" and "dark" will be especially well fitted to serve as a clue in this matter. "Light" and "dark" are relative ideas, like large or small, loud or low, heavy or light, quick or slow. All these ideas are based upon comparisons with some object which has been accepted as a standard.

But for no species of quantities do we carry a fixed and invariable standard within ourselves, excepting perhaps for short lengths, which might be compared to the members of our own body.

As soon, however, as an object is not in close proximity, or as soon as it considerably exceeds the dimensions of our own body, we are extremely uncertain even in our judgment as to size, because this judgment is dependent upon all possible sorts of influences.

If, for instance, we see a person at a considerable distance walking across a level surface free from all other objects of comparison, say a very extensive meadow, we shall be absolutely unable to tell whether the person be large or small, or even whether

it be a grown-up man or a child. If, on the contrary, a single object of comparison were present, our judgment would at once be influenced in a definite manner from which it it would be impossible to escape. Presuming the person in question to be near a very large tree, the size of the tree, however, being unknown to us, we should undoubtedly be induced to suppose the person to be very small, since we attribute a medium size to all things of a certain species, as long as we are not informed to the contrary. In the same manner we should suppose the man to be much too large, if by chance he led an especially small horse.

It would be an easy matter to increase the number of similar examples, taken from various fields of observation, but we will now turn without further delay to that field which is at present of the greatest interest to us.

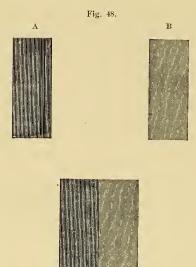
A piece of gray paper lying before a window in the full light of day may in reality be incomparably lighter than a sheet of white paper in the room, but still we shall immediately recognize that the one is gray and the other is white. We suppose the white paper in the room to be lighter, although in fact we see it much darker than the gray paper lying outside.

Thus an object will appear light to us if placed near a dark object suitable for comparison; but we shall take the same body to be dark when juxtaposed to a light object. The process in neither physical nor physiologic; it is a psychologic process.

#### CONTRAST BY JUXTAPOSITION.

Our judgment in regard to similarity or dissimilarity in brightness is all the more certain the nearer the two surfaces to be compared are placed to each other, and the greatest degree of certainty is reached when the two touch each other directly. This is well shown by Fig. 48, which has been borrowed from Chevreul. The two surfaces A and A' are shaded precisely alike; the same is true of B and B'. But while it is difficult to determine the difference in brightness between A and B, the difference between A' and B' is quite marked.

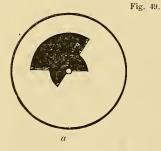
At the same time another peculiarity will be noticed. Each of the two surfaces touching each other looks as if it were shaded off towards one side, while in reality each is



covered with a perfectly even tint. Furthermore, the brighter surface appears to increase in brightness, the darker one in darkness, towards the boundary line. It follows that the effect of contrast is strongest at this line. The name of "contrast by juxtaposition" is therefore given to this class of phenomena.

 $_{\mathrm{B}'}$ 

This contrast by juxtaposition can be observed best of all by producing rings of a gradually diminishing degree of brightness upon the color-top, as shown by Fig. 49  $\alpha$ .



In this case each ring, when the disk is rotating, appears to be separated from the neighboring ring by a darker circle, so that the disk presents the appearance of Fig. 49 b.

In painting and in color printing this contrast must be taken into account whenever it is desirable to avoid hard boundary lines between two neighboring surfaces. In painting it can be obviated by toning down on the side towards the boundary.

The contrast by juxtaposition does not belong exclusively to the category of simultaneous contrast, and is not therefore based simply upon a deception of our judgment, but it is also in great part caused by successive contrast. For whenever we look at an object we do not direct our eyes steadily to any one part, but we keep moving them about continually. When we turn our eyes from a darker surface to a lighter one, the image of the outer parts of the lighter surface must necessarily fall upon those parts of the retina which have just been exposed to the image of the darker surface, and which are therefore all the more sensitive to the new impression of light. Hence it follows that even from the effect of successive contrast the outer parts of the bright surface must appear brighter than the rest.—Von BE-ZOLD'S Theory of Color.

## REVERSED NEGATIVES.

BY F. N. BLAKE.

READ with interest Mr. Webster's article on reversed negatives, in the April number of the *Philadelphia Photographer*, and agree with him that the method given in *Mosaics* is rather complicated for ordinary work; but, instead of taking out the ground-glass in the camera and turning it around, I get the focus in the ordinary

way, and then move the back of the camera towards the lens the exact thickness of the plate I propose to use. In this way the focus may be quickly and accurately obtained without injury to the camera or trouble to the operator. In my practice (photographing on wood for engravers), it is very

frequently necessary to be exact about the size of the picture; but by Mr. Webster's method this could not be done, unless the plate is the exact thickness of the ground-glass.



#### GERMAN CORRESPONDENCE.

Death of Mr. Voigtlander—Durability of Pigment Prints—Pigment Prints by Means of Iron Salts—Dr. Elder's Works about Photo-Chemistry of Chromates—Magic Lantern and Astronomical Photography in Germany—Dr. Vogel's Hand-Book, Third Edition.

N the 7th of April, 1878, died in Braun-U schweig the well-known optician, Voigtlander; the world is therefore deprived of a man who commanded great credit for the development of photography. Where would we be in portrait photography if Petzval had not calculated the lens which Voigtlander put in practice? How splendidly he carried out Petzval's ideas is generally Thousands of his lenses were quickly spread all over the world, and gave to the photographer the means to produce a picture in just as many seconds as formerly minutes were required. This is the greatest of all optical inventions in the limits of photography. How many new lenses were ever constructed after the portrait lens that maintained its standpoint as the most important instrument in every studio? Excepting a little modification by Dallmeyer, it has not received any change since it first came out.

Voigtlander was born in Vienna in the year 1812, where he was known as an excellent optician before his acquaintance with Petzval. His orthoscope, made also after Petzval's calculations, has had less success. In the year 1848 Voigtlander moved to Braunschweig, where he died. His son, Frederick, who lately succeeded with the construction of the Euryscope, carries on the business.

The question of the durability of pigment pictures has recently been the subject of many deliberations. Monckhoven's article, in which he expresses his doubts about pigment prints colored with organic colors, has caused quite a surprise, and has also been frequently answered. Monckhoven says that during the exposure of a sensitized gelatin film, chromate of chromium (Cr<sub>2</sub>O<sub>3</sub> +CrO<sub>3</sub>) is formed, which will not be decomposed in washing, as it remains in the picture, and undergoes a further reduction by simultaneous destruction of the organic

colors. I only partially participate in this opinion. That during the exposure first chromate of chromium is formed is evidently proved by the brown color. This body, however, is decomposed in washing, and chromic oxide left. Much depends, however, on the quantity of free alkali in the water. The slightest addition of lime or ammonia will turn the blue picture which is formed during exposure very soon into green, whilst pure water does so very slowly. The wash water of the photographers being very different, they must necessarily have obtained different results. It depends further on the time during which the process of washing is performed. Any quantity of chromate left in the picture will not fail to have its bad effect on the organic bodies. Monckhoven thinks that crap lake and indigo will undergo an equal change, and he recommends, therefore, to put the finished picture in a solution of sulphate of sodium, which has an immediate reducing effect on the chromic acid. However recommendable this remedy is, I doubt that it is reliable in all cases. Carmine, for instance, which sometimes is used for the production of purple tints, will surely fade in course of time, whether chromic acid is present or not. The only remedy against it is to do away with it. Monckhoven recommends crap lake, with oxide of iron, instead of it. He asserts that it is to be had in the nicest red color, although I have never seen it. I read about the same subject in English journals, where they recommend purpuvin, which is a part of crap. This body is very nice indeed, but by no means fast. In presence of alkali, the purpuvin is very soon faded. As for myself, I have only used lampblack and Vandyke red for the preparation of pigments, and always got very nice tones for portrait work. Pictures on such paper are exhibited in my studio since ten years without showing any change. Monckhoven describes some other interesting experiments about sensitizing of pigment paper without bichromate of potassium. He puts the paper in a twenty per cent. solution of citrate of iron and ammonia. (I wish to add that citrate of iron and ammonia wants ten times its volume of water to dissolve it, so that it is consequently impossible to produce a twenty per cent. solution.) Paper thus prepared is to be dried in the dark, exposed, and after exposure dipped in a solution of bichromate of potassium, and finally transferred and developed. The sulphate of sesquioxide of iron is reduced by the action of light to sulphate of protoxide of iron, and this again reduces afterwards the chromic acid of the bichromate of potassium, and forms super-oxide of chromium, which renders the gelatin insoluble. It is quite evident that this method offers no advantage whatever, as the super-oxide of chromium, or chromate of chromium, which is exactly the same, is formed afterwards; besides, the work with the double iron salt is by no means agreeable. Monckhoven mentions further that there exists several combinations of chromic acids and oxide of chromium.

According to D. E. Elden, who publishes an excellent work about photo-chemistry of chromates, the chromates of chromium are never a steady composition. chromium shaken with bichromate of potassium will take more or less chromic acid, according to the time in which this separation is performed. Elden's publication merits all attention from photographers on more than one point of view. He has not only collected the literature of the chromates, but also made numerous experiments for the profit of the decision of many obscurities on this subject. He always considers closely the relation of chromates to gelatin, albumen, and gum, observations of greatest interest for the lichtdrucker, heliographer, photo-lithographer, carbon printer, etc. It is surprising to learn by him that the famous Nelson gelatin is less applicable for lichtdruck, on account of its little strength, than other gelatins; further, that gelatin mixed with alum binds the latter so intimately that neither warm nor cold water are capable of washing it out again, that consequently the much-recommended method for purifying gelatin (swelling in water and pouring off of the latter) is of no use whatever. Gum and albumen mixed with chromate are insoluble. Neutral chromate of potassium forms with gelatin twenty to thirty times less sensitive films than bichromate of potassium. Better effects are obtained by chromate of ammonium. Trichromate of potassium is not applicable for pigment printing. It is not my intention to mention every item of this interesting work, composed of eighty-eight pages, and therefore content myself with having called your attention to the same.

Two important applications of photography, long since known in America, have found their valuation in Germany too; first, the application of the magic lantern in lectures; second, the use of photography for astronomical observations. I found great opposition while recommending, eight years ago, the magic lantern for schools. It was asserted when, on my account, ten sciopticons were introduced, that a picture suddenly thrown on a screen, could not have the same edifying effect on the audience as a picture drawn (by the by, one forgets that many teachers do not know how to draw, or do not find the necessary time); now they learn to appreciate its value better.

In the new palace of science, the Natural-Philosophical-Physiological Institute of Berlin, there has been arranged in two great lecture-rooms all the necessary apparatus for the objective representations of not only pictures, but also physical and chemical processes. In regard to astronomical photography, M. Janssen, of Paris, has recently obtained magnificent results. His picture of the sun, showing the strange growing surface, has created just as much astonishment as formerly did the moon pictures by De la Rue and Rutherfurd.

France has been less successful at the transit of Venus expedition; whilst the present results are of very little account, the Germans proved at least, that under certain atmospherical circumstances, the method of observation by means of photography has decidedly the advantage over the ocular observation.

Henceforth we will have a great astronomical-photographical observatory in Potsdam, near Berlin. A number of beautiful new buildings, very romantically situated on the Havel, on the summit of a picturesque hill, serve as the astro-physical observatory; a great part of the same is devoted to photography. A separate tower is erected, with a skylight on the top, for the establishment of

the photo-heliograph, and the reproduction of the obtained results. There are plenty of dark-rooms and other photographic departments, and the best opticians are occupied to furnish for this new institute the best possible instruments. Tohröder, of Hamburg, furnishes the heliograph; its telescope is stationary, inclined downwards, pointing to the mirror of a heliostat, which reflects the rays of the sun into the telescope. The picture of the sun formed in the focus of the telescope is enlarged by the ocular lens. Everything will be completely arranged in the course of a few months, and the best results are to be expected by the zeal of Dr. H. C. Vogel (my namesake) and Dr. Lohoe.

Among other photographic news, I have still to mention that the third edition of my *Hand-Book of Photography* has appeared to-day, published by Oppenheim, of Berlin.

Very truly yours, H. Vogel.
Berlin, April 29th, 1878.

## STATUS OF THE SWAN PATENT.

WE do not suppose there are twenty of our subscribers interested in the Swan patent, but all of them are interested in the fact that the Philadelphia Photographer tries never to mislead them, but always to give the quickest and most reliable information on all subjects. We are, therefore, always willing to correct a mistake when we make one; and it is claimed that we have made one in our statement in our last issue, concerning the expiration of the Swan patents in the United States.

Owing to a change made in the laws, as will appear below, there was room for two opinions on this subject. Ours was based on the letter below, from F. A. Seeley, Esq., Chief Clerk of the United States Patent Office at Washington.

The courts, however, have decided differently, as will appear from the opinion annexed, of Messrs. Howson & Son, Philadelphia, the renowned Patent Attorneys, and counsel for the photographers in the "Bromide" and other patent causes.

We bend to such distinguished ability, feeling, after all, that although Swan's patent is dead in England, its chance existence here wont do much damage.

United States Patent Office, Washington, February 23d, 1878.

Dear Sir: Yours of 16th inst. received. The patent to Swan would naturally expire in seventeen years from its date, or January 22d, 1884, if you refer to No. 61,368, of January 22d, 1867. If it has now expired it must be on account of expiration of a previously obtained foreign patent; a case which would not admit of an extension in this country.

Truly yours,

F. A. SEELY,
Edw. L. Wilson, Esq.,
116 N. Seventh St., Phila.

Howson's Patent and Law Offices, Philadelphia.

DEAR SIR: J. W. Swan, on January 22d, 1867, obtained a U. S. patent, No. 61,368, for a mode of printing photographs. He had previously obtained an English patent, No. 503, February 29th, 1864, sealed June 14th, and complete specification filed August 29th, 1854.

When does the U. S. patent of Swan expire? This we understand to be your question.

Section 6 of the act of 1839 provides that "no person shall be debarred from receiving a patent for any invention or discovery, by means of the same having been patented in a foreign country more than six months prior to his application, provided that the same shall not have been introduced into public and common use in the United States prior to the application for such patent, and provided also that in all cases every such patent shall be limited to the term of fourteen years from the date or publication of such foreign patent."

Section 16 of the act of 1861, under which Mr. Swan's patent was granted, provided that "all patents thereafter granted shall remain in force for the term of seventeen years from the date of issue." And Section 17 repealed all acts and parts of acts theretofore passed "inconsistent with the provisions of this act."

Some authorities have contended that these sections had the effect of repealing Section 16 of the act of 1839, which, as has been shown, made the term of patents for inventions patented abroad more than six months before the application here, commence with

the date or publication of such prior foreign patent.

Taking this view of the matter, Mr. Swan's patent would remain in force for seventeen years from the date of issue, that is, until January 22d, 1884.

But the more generally received construction of Section 16 of the act of 1861, so far as it bears upon the term of patents for inventions previously patented abroad, has been that it simply made that term seventeen years from the date of publication of the prior foreign patent, instead of fourteen years as theretofore.

This has been the accepted construction in the Patent Office, and was distinctly enunciated by Commissioner Fisher in the cases of Hermann vs. Gilmore and Edes vs. Jewsbury.

In the case of Weston's pulley-block, the U. S. patent was dated August 6th, 1867, and the complete specification of the prior English patent was filed October 22d, 1859. His Honor, Judge Shipman, decided that the term of the U. S. patent was for seventeen years from the date of filing the complete English specification, that is, until October 22d, 1876.

We are now engaged in prosecuting before Congress a petition for an extension of the Weston patent, and the committees both of the Senate and House have accepted this decision.

We are satisfied that the patent of Swan will expire in seventeen years from the date of filing the complete specification of the English patent, that is, on the 29th of August, 1881. Respectfully yours,

Howson & Son.

## SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILA-DELPHIA.—The stated semi-monthly meeting of this Society was held Thursday evening, April 18th, 1878, the President in the chair.

After the minutes had been read and approved, a cordial vote of thanks was tendered to Mr. Hewitt for the very great improvements made in the room under his direction.

Mr. Bates exhibited a print from a negative made by Mr. Bell with an iodide emulsion. The exposure had been quite short, and the result was excellent.

The President said that he had recently experimented with this emulsion, and was much pleased with its working.

Mr. Browne gave an account of some failures he had met with in attempting to intensify a number of negatives after they had become dry. The usual pyro and silver treatment was employed, and the negatives were destroyed by the film splitting. He thought that if the plate had received a substratum of albumen, this would not have occurred.

Mr. Carbutt thought that the addition of two or three drops of water to each ounce of collodion used would prevent films splitting in this manner.

After a general conversation, the meeting was, on motion, adjourned.

On Thursday evening, May 2d, another stated meeting was held, the President in the chair.

After the reading of the minutes of the previous meeting, the subject of the excursion was brought up, and, on motion, Monday, May 27th, was fixed upon as the day for starting. The members intending to participate were requested to sign a paper pledging themselves to bear their portion of the expense.

Considerable interest was manifested in Mr. Bell's iodide emulsion, and samples of work made with it were shown by several of the members. Mr Bell claimed that, used wet, this emulsion was as quick and satisfactory as the ordinary wet process.

Mr. Carbutt suggested that zinc chloride might prove of value in the gelatino-bromide process, both as an antiseptic and from its property of toughening the gelatin.

This gentleman remarked that there was a great difference in the behavior of different samples of gelatin when soaked in water, some varieties swelling much more than others. He thought that those kinds which swelled least would be best adapted to emulsion purposes.

The Chairman exhibited a very conveni-

ently arranged spirit lamp, intended for drying emulsion plates when traveling.

Mr. Sartain exhibited a highly ingenious device for edging plates, so arranged that it could be conveniently carried in the pocket.

On motion, adjourned.

D. Anson Partridge, Recording Secretary.

## MORE LIGHTNING.

OUR readers will have read Mr. Webster's remarks concerning the "Lightning Negative Process," so called, which precedes this, wherein they will find the facts of the case about as we predicted in the supplement to our April issue.

Our only interest in the matter is to prevent our patrons from being humbugged into parting with their money without value received, to go into the pocket of any adventurer with a glib, saucy tongue, who may presume to mislead them.

Why photographers will not act a little more wisely in these matters we cannot tell. Even after they are cautioned by their magazines they allow themselves to be victimized. We have an "honest confession" from such an one before us, six pages long, who bought the "Lightning Negative Process," and now wishes he had, instead, paid for the *Philadelphia Photographer* five years in advance.

His letter is in confidence, and we are not permitted to publish it, but we have a number of similar ones, and are asked to publish the following from Bachrach Bros., Baltimore, whose standing is undoubted in the trade.

BALTIMORE, May 14th, 1878.

Having seen the advertisement of Mr. Lambert in Anthony's Bulletin, indorsed by the publishers, in regard to "The Lightning Negative Process," we, as well as several others in this city, sent the amount demanded, and obtained a permit to buy the chemicals of Messrs. Anthony. We accordingly sent for a lot, strictly followed directions, and—failed to find any greater rapidity than with our regular chemicals. We wrote to Messrs. Anthony and Lambert in reference

to the matter, and demanded the return of our money for permit, which was complied We offered to repay double the with. amount when we could see that the process would do one-half that was claimed for it. In order to give it a fair trial, we ordered a second lot of chemicals, which we opened and tried in the presence of other photographers. The result, tried by the side of our own, was the same as before. Others who have tried it here have had the same experience. We therefore pronounced the thing a humbug and of no value whatever, and think it our duty to so declare it to the photographic public. We were very sorry to come to this conclusion, as we had really hoped from the character of the house that indorsed Lambert, that an important step forward had been attained in our art.

The list of chemicals used are collodion, bath, developer, continuator (or redeveloper), and reintensifier.

Lambert informed me, in answer to my objections to paying one dollar per ounce for silver, that they used fused silver. The only apparent advantage I saw was in the developer, and that flushed the picture out as quick with our chemicals as with theirs. The bath is used neutral, or nearly so. Collodion is colorless, but they direct to color it a little with iodine.

That the Anthonys should have found it rapid in comparison to their commercial collodions, I can readily imagine, as we work twice as quick with ours, and so does nearly every one. The thing is undoubtedly a humbug, and they have been taken in.

It must be remembered that this Theo. S. Lambert is not the Lambert, the improver of the carbon process, but only acted as his agent, and is no connection of his. He is the same chap who engineered the Sarony crayon swindle, against which I vainly warned several Baltimore photographers. How such a chap got any standing with the Anthony house, is one of those things no fellow can find out.

That semi-fused silver makes a more sensitive bath than the crystallized is a fact I, with others, knew long ago, and we periodically treat our baths that way to correct them. It has often been recommended in your's and other journals; and, like many

things, is forgotten after awhile. It can be used with less acid and new collodion; another gain. Respectfully yours,

BACHRACH BROS.

Another correspondent says: "I could fill a book with accounts of the different trials, but, in short, I have not yet succeeded in getting any kind of a printing negative with the process, unless I give two to three times the exposure required by my own preparations. By a long series of developing and redeveloping, I could coax up a six seconds' exposure to a mussy negative of poor printing qualities. I exposed a plate coated with my own collodion, cut into two, and developed one end with my developer, and the other end with "lightning." Mine came up quickly-a strong and vigorous negative; the other was redeveloped and only produced thinness and weakness."

"Let photographers hold on to their hardearned money."

Since printing Mr. Webster's article on our first page, we have received the following:

In my communication on "Lightning" I made mention of the secrets being in bottles, and gave the number of bottles as three, but I failed to give the contents of the bottles. I write now to give that information, hoping I may be in time to have it inserted in the same number as the other. The three bottles contained, silver solution forty grains strong, for bath, in one of them; collodion in another; and developer, double strength, in the third. The silver was simply a neutral mixture. The collodion could not have differed much from ours in regular use, as appeared upon trial; but the developer gave every indication of being different from any that we had ever used before. The deposit, however, was of a coarse, sandy nature, which gave to the background anything but a pleasing effect. Take it all in all, from what I have seen of the "Lightning Negative Process," I would not give it houseroom, let alone paying twenty dollars for the privilege of using it. I consider the license to use a "magnificent sell," just what might be expected, coming, as it does, from the

greatest "process vender" of the age. It occupies a back shelf in our house now, to be brought out again when? *Echo*, when?

I. B. WEBSTER.

And thus they write from various quarters.

One thing the "lightning" has done that is good, and we give it free credit for it. It has led photographers to try comparatively with it, how quickly they can work their own preparations, and to their great surprise they can excel its results in the same time!

Moral: save your money, and try to develop the full capabilities of what you have by intelligent and diligent experiment, and then, although you wont do it, you will have knowledge and power sufficient to prosecute the regular photographic trampprocess business.

P. S. There are now no less than three "lightning" processes for sale. We recommend the lightning-rod business as one likely to pay you.

### OUR PICTURE.

EVEN if the number of competitors is not large, it is gratifying to know that when a prize is offered for the best American photography, that it awakens *some* interest at least in all parts of our great land, and that the rivalry spreads from north to south and east to west. We have already shown our patrons some of the examples of work which came from the east and the west, and now we come to them with something from the sunny south, which is in every respect worthy of being placed amid the best that is anywhere produced.

The negatives were made by Mr. D. H. Anderson, Richmond, Va., than whom few southern photographers, if any, do better work. Mr. Anderson has always been a progressive photographer, full of enthusiasm, cultured and enterprising, and has even been so earnest for excellence as to make a pilgrimage to Europe in order to be able to study the works of the best masters in our art there. He lets no efforts go unmade that can be made to improve his work in every respect, and his enviable reputation proves

that the efforts have been well repaid. A very pretty compliment was paid him by one of the city journals a short time ago, which we reprinted in our last number.

The present picture from Mr. Anderson's studio is one of his best productions, and was the cause of more indecision on the part of the judges when making the award than any other picture competing with Mr. Elton's. We commend it to our readers as a model well worthy of their study.

We have received from Mr. Anderson a photograph of his skylight, with a few details concerning it. We are sorry that neither he nor his talented operator, Mr. Bradley, could not find time to give us more information in behalf of our readers. An article from them on posing and lighting would be very useful, especially as they manage to get such excellent results without any sidelight whatever.

The photograph tells us that the skylight is well accounted in every respect with apparatus, accessories, backgrounds, etc., of not modern and tasteful design. Further than this, we will let Mr. Anderson's letter speak.

"I mailed you a photograph of my skylight this morning. The following are the dimensions, etc.: Room, forty feet long, thirty feet wide; skylight, fifteen feet long, fifteen feet wide; square, as you perceive; Distance of lower part of no side-light. the light to the floor, is seven feet four inches; door in farther end of room leads to printing-room. The two windows observable at the point the side-lights are usually introduced are nothing; were originally out windows at the back of the house; are only left to afford some light to the waiting- and toilet-rooms. The light is a northern one.

#### FORMULA.

#### Collodion.

Ether and Alcohol, .	equal parts.
Cotton,	4 grains.
Bromide of Cadmium, .	11 "
Bromide of Ammonium,	11 " .
Indide of Ammonium	5 "

#### Bath.

35 to 40 grains of Silver to the ounce of water.

"Any hints as to posing or lighting in this

hurried note, would be necessarily too crude and undigested to be of value; at some future time, perhaps, I may make them the subject of a few remarks."

# THOUGHTS FROM THE ALMANACS.

No. 3.

(Continued from page 159.)
The following are from the Year-Book.

H OW to Remedy Weak Negatives.—
"Every photographer is in the possession of weak negatives of one kind or another, incapable of yielding anything but flat gray prints without vigor and effect. It does not matter how he came to possess them: suffice it to say that they are there, and that such clichés constitute a veritable loss to the conseientious photographer.

"The means I employ for transforming such negatives as these into serviceable clichés is a very simple one, and I am enabled by its aid to convert this refuse stock into soft and striking photographs. I reproduce by contact printing, upon a dry collodion plate, a positive transparency full of detail. This I develop in the ordinary way, but I take care never to intensify. From a cliché thus prepared, I hereafter am enabled to secure an excellent negative.

"To obtain this negative, I put the positive cliché just prepared into a printing-frame in contact with another dry collodion plate. The printing press is put into the daylight, and is then covered with a piece of red glass. The time of exposure is, as a matter of course, dependent upon the intensity of the light at the time being. It is best, I always find, to do the printing, if the state of the atmosphere will permit it, under the direct rays of the sun. The result is then more rapidly obtained, and the effect is more brilliant.

"This method of transforming eliehés may be applied with the same success to processes of enlargement."—Adam Salomon.

On the Mounting and Framing of Photographs.—"Ornamental mounts to views are, to my mind, a great mistake; they cannot possibly improve an indifferent photograph, but they can and do vulgarize or spoil a

good one. The more simple the mount, the more refined and agreeable will a work of art appear; but there can be no objection to the use of a plain border line, in brown or violet, or other quiet color. Indeed, it is of great use in some cases; for instance, in a subject which appears to want tying together, as it were; but so-called 'Greek' and other ornamental corners must be studiously avoided. Titles, when not printed in, should be neatly written in pencil, without any attempt at ornamental lettering, rather low down on the mount, and not just under the edge of the picture. It is surprising how much of the effect depends upon attention to these small matters."-Francis BEDFORD.

Light and Shade in Portraiture.—"The best portraits are those which represent the subject in the most favorable manner. Now a head almost entirely in shadow, with the eye cast aside because it cannot look into the light, is not in the most pleasing circumstances for favorable expression, or for giving character and individuality. In a photograph of a well lighted head may be seen the extremes of black and white, but neither of them will be broad masses. Both black and white in intensity may be there, but in very small quantities, united by broad masses of ever-varying gradations, and the other parts of the picture will be so managed as to give due relief, prominence, and effect to the head."—H. P. Robinson.

A Pot of Paste.—" The above is a very useful article, either in a house of business or for domestic use. The drawback has been that it soon becomes sour, offensive, and unfit for use; especially for the photographer. Some time ago it occurred to me whether by adding ordinary methylated alcohol to it, it would prevent or retard decomposition, and I find that by making the paste in the first instance as thick as possible by boiling, and then thinning it with methylated alcohol, it will keep for many months, especially if it be covered in a wide-mouthed bottle when out of use. This will also prevent evaporation of the alcohol better than by keeping it in an open vessel. I also find that it keeps quite as well as the gelatin mountant, sold under the name of 'parlor paste' by

the dealers. I have now some by me that has been made six weeks, and at present it is quite as good as the first day it was made. Starch, arrowroot, etc., I have no doubt can be treated in the same way.

"I have never heard of methylated spirits being mixed with paste, therefore I thought it might be useful to photographers, and send it as a contribution to this annual."—WILLIAM BROOKS.

Blisters in Albumenized Prints.—"I find by making my hypo of soda solution a few days before use, blisters are very rare with me. I make a gallon at a time. If wanted immediately, make with warm water, and put the prints into water of the same heat as the soda, and let it get cold before changing. By so doing blisters are reduced to a minimum. The paper I use is Thomas's. Blisters only appear with me with a fall of temperature; to cure which, warm hypo, and put in warm water."—Richard Huck.

How to Clean Old Glasses.—" Immersion in diluted nitric acid for a lengthened period is now generally considered the best way to clean old glasses. This is correct, but I find it important to use friction in combination with it, and the best material for the purpose is finely levigated pumice-stone, which is not decomposed by the acid, and, being so much softer than the glass, does not scratch (this does not apply to patent plate). As an illustration of the detergent effect of nitric acid take two pieces of sheet copper or brass; rub one with pumice-stone and water, and the other with pumice-stone and diluted acid, and notice that the latter cleans far better, and in a very much shorter time. The one great disadvantage of cleaning with acid is the corrosive action on the skin. This can be avoided by using two dipping baths, which may be made of wood, with dippers of the same material, one plate to be lodged on the dipper to drain, whilst another is being immersed. The plate may be removed from the bath and placed on the cleaning-board, and held in position with a large cork or bung, whilst the pumice-stone is applied with the right hand, using one of the blocks covered with woollen cloth—that I described at the Technical Meeting. An old kid glove may be used, with pieces of cork cemented on to the top with marine glue, for pressing on the glass to keep it in position. Prolonged immersion in the acid is no doubt preferable, in which case the plates may be hooked out of the dish with a piece of bent iron wire, and put on to the cleaning board with an American clip, to protect the fingers. I now use powdered pumice-stone entirely for polishing dry plates. It is equal to rouge or tripoli, and far cleaner to use."—F. York.

How to make Enamelled Passepartouts.—
"As many of my readers are doubtless aware, the above are only made in France by one little Frenchman and his wife, who will have neither assistant nor apprentice, for fear their secret of manufacture should become public property. I have, however, I believe, discovered that secret; simple as Columbus's egg.

"Tremble not, O little Frenchman! for my countrymen will doubtless pass this by without a thought, as they have not to pay for any royalty or exclusive license. The way I go to work is as follows: On a piece of paper (the size of the glass) I mark the shape of the opening required and where the gilt line is to be. After having thoroughly cleaned the glass, I make this line in the ordinary way by laying the gold leaf on, and chiselling off where not wanted. I then take oil paint (the color required) free from lumps and skim, and make the edge of opening by laying the paper guide on the table, and the glass on this, and going carefully around with a lining tool; then daub away over the rest of the glass (not in the centre, of course). I then add the gilt bevel, back up, bind, and ring, as per usual. There you are, my friends. By putting an inner gilt line you can paint away without bothering to line the edge."-Frank M. Sut-CLIFFE.

Cloud Making.—" My method of printing clouds is as follows: After I have placed the sensitized paper in contact with the negative, I take some red and black ink, and mix to a fairly non-actinic color, thickening with a little gum to the consistency of cream, and then smear with a thin piece of stick (say the point of a penholder), lightly, in front of the plate with varying.

irregular lines between, say, a high hill and a castle or church; in fact, anywhere where the print would look all one mass of light. After this application I very lightly brushed these smears with a very fine, broad camel'shair brush (such as grainers use) various ways, but more especially obliquely in both directions, and the clouds appear in the only printing equal or even superior to prints which require two separate printings, besides saving considerable time and trouble; and this alone, to amateurs, I presume, must be a matter of importance. I prepared my plates with emulsion after Newton's formula, and his preservative, developing with Col. Stuart Wortley's strong alkaline developer, and the skies were, owing probably to a little dull weather, very thin, but the landscape itself was sufficiently dense.

"Probably these hints may have been thought of before, and worked out more perfectly, yet I venture to say that many amateurs would much improve their views with a little careful and judicious use and practice of the stick and brush. Of course the lines must not be parallel, or straight, but should take the irregular form of clouds, and then be shaded nicely off with the brush. Practice makes perfect, and a very little practice in this case is all that is required."—J. H. Storr.

#### PHOTOGRAPHIC NEWS.

A ND now Mr. Joseph Wilson Swan, the practical inventor of the carbon process, announces the discovery of "a dry process four times as quick as the wet." The manipulations are said to be easy and simple, connected with certainty and beauty of result. Surely the time seems near at hand when the photographer may do two or three days' work in one, and grow rich that much faster. "Overproduction" will be the next cry.

THE exhibit of the Paris police, illustrative of the uses now made by the city government of our art, excites a great deal of interest at the Paris Exhibition. Such a collection always does excite interest, and the observer will ask himself the question, as he often does in a cemetery, "I wonder how soon I may be there?"

Captain Roger, in the News, suggests that gelatin emulsion can be kept indefinitely without decomposition, by immersing the bottle which contains it, cork down, in a vessel of carbolic acid, very much diluted. It is only necessary to place the bottle in hot water to redissolve the emulsion, and it is ready for use.

Mr. Coscaden, in the News, suggests the following method of keeping plates cool while copying in hot weather: "I make a good, strong, wood case, something in the form of a camera, but no sides or ends; I fit two flat tanks (zinc) in the top and bottom, which I fill with cold water and a small quantity of hyposulphite of soda. There will be six inches deep of ice-cold water, which will repel the rising and falling heat, and keep the camera cool and steady. The sides are hung with waterproof canvas, which run on rods, and can be drawn when in use, which will also repel the heat in like manner; and, as it does its work so well, and is not an expensive contrivance, I have much pleasure in recommending it to those who are troubled with a hot studio."

Mr. John Nicol, the Edinburgh correspondent of the *British Journal*, says any enterprising photographer can "make it pay" part of his passage to Europe by taking photographs of his fellow passengers aboard ship. Ferrotype plates and mats and preservers should be part of the stock taken along. Here is a chance to "work your passage" to the Paris Exhibition.

Dr. Nicol, having arrived in America, writes back to the *British Journal* glowing accounts of his visits to some of the photograph galleries in this country. After his examination of them, his conclusion is that "very pretty girls are scarce," and yet Dr. Nicol's special errand to America was to get a wife!

Mr. Prophet, of Dundee, lately made a negative 8x10 of a church at 11 to 12 P.M., by means of the electric light, and in a drenching rain. Did he use the "Lightning Negative Process?"

AT the last meeting of the Paris Pho-

tographic Society, Mr. Penne, of Algiers, announced a new extra-rapid process. He operates by means of an apparatus of which he is the inventor, which he intends to patent, and with a new product that has never yet been used in photography.

The process is extremely simple, and gives readily excellent results; even in the hands of the inexperienced amateur failures are not to be feared.

It can be used with equal success for views and groups in the open air. He has obtained, in the south of Algiers, with a plain three-inch objective, one-eighth-inch diaphragm, negatives, 8 x 11, of extreme delicacy, in an exposure of two seconds.

Mr. Penne has judged that the best method of proving his assertions is to operate before a large number of competent persons. He has in consequence invited the fraternity to assist at some practical experiments which will be made successively in the ateliers of Messrs. Walery and Franck, who have kindly placed them at his service for this practical demonstration.

One of the meetings has already taken place, and with favorable results.—Moniteur.

POSITIVE CARBON PRINTS ON GLASS, IMITATING ENAMEL.—Mr. Ernest Boivin writes as follows to the *Moniteur*:

"In the Moniteur of 1876, I had given a process for obtaining positive carbon prints on glass, imitating enamel, by pouring over the plate on the image side fine plaster of Paris, so as to form a thin coating. To-day I have perfected this process, and instead of plaster, I use a mixture of gelatin (10 parts for 100 of water), and made of an opal whiteness by using sulphate of barytes in an impalpable powder, or oxide of zinc. images that I thus obtain are of extreme delicacy, and, besides, they may be finished in a very short space of time. If the gelatin is slightly colored with carmine or any other color, charming effects may be obtained. In a few words, here is the mode of operation: A carbon print is transferred to glass, then, after the ordinary manipulations and drying, or even whilst the image is still wet, the whole of the plate is covered, on the print side, with the gelatin mixture. After drying, which should be done in a horizontal position, pass or not in alum and the image is finished.

"After using the gelatin mixture I do not remark any of the small blisters usually found on the plaster; besides, the film offers much more resistance."

PHOTOGRAPHY FORESHADOWED .-- A correspondent sends the following to the English Mechanic: "The first prophetic allusion to the photographic art, the discovery of which was to take place eighteen centuries later, is perhaps found in the story of the miraculous occurrence told in the life of St. Veronica. The second instance is about the year 1690; but intermediate instances may probably be found. I extract from the works of Fénelon the following passage from an imaginary voyage in 1690: 'There was no painter in the country, but when any one wished to have the portrait of a friend, a beautiful landscape, or a tableau which represented any other object, he put water in large basins of gold or silver; then placed this water opposite the object he wished to paint. Soon the water congealing became like a looking-glass, in which the image of that object remained ineffaceable; and it was a picture as faithful as the brightest mirrors.' One could wish that the author had entered into detail as to the manner 'of placing this water opposite the objects he wished to paint.' The third instance is about 1760, that is seventy years later, and seventy-nine years before 1839, the date of Daguerre's discovery. It is reported by Ed. Fournier, who extracted from what he calls 'un assez mauvais livre,' written by a certain Tiphaigne de la Roche, the entire passage, extremely curious, but rather long. This passage contains many details. The 'water' of Fénelon is replaced by 'a material very subtle, very viscous, and very ready to dry and harden.' 'They' (certain 'elementary spirits') coat with this material a piece of linen, and present it to the objects which they wish to paint,' etc. In the last two examples the pictures formed reproduce the images of the objects, with their natural colors and their forms, so that the objects are seen as if reflected in a mirror. The photographs of the present day are still very far from this ideal perfection, which, however, they will probably never cease to approach without ever being able to reach."

DIRECT COPIES FROM PRINTS.—The same gentleman describes M. Pellet's mode of copying without the use of a negative. He says: "Mons. Pellet presented a new process which could give blue lines upon white paper, which rendered the process very valuable for the reproduction of drawings for engineers, architects, etc. The sensitizing solution is composed as follows:

This solution can be modified according to the sensibility required. The oxalic acid can be replaced by any of the other vegetable acids. If the paper has not been sufficiently sized, gelatin, gum, isinglass, or dextrin can be added to thicken the solution. When dry, the paper preserves its sensibility very well, which sensibility is very great. In order to reproduce a map, a sheet of sensitized paper is placed under the map, and if in summer and in the sun, fifteen to thirty seconds is sufficient to decompose all the parts not protected by the black lines. By the action of the light, the salt of iron is reduced into protoxide. This salt is not acted upon, as the former, by a solution of yellow prussiate of potash, therefore those parts protected by the black lines turn blue. After exposure, the paper is plunged into a bath of prussiate (fifteen to eighteen per cent.), and immediately the design appears in blue. The paper is then rinsed in cold water and plunged into a bath of chlorhydric acid (eight per cent.), in order to dissolve out what may remain of the protoxide and whiten the paper; the proof is then washed and left to dry. The experimental demonstration which Mons. Pellet gave before the Society obtained a great success. I remember quite well having seen, during my visit to England, a similar result obtained by Mr. Willis, Sr., although I do not remember by what process."

NEW KIND OF GLASS.—Mr. Sidot, of Nancy, is the discoverer of a new kind of glass, which is prepared by heating acid calcium phosphate to a white heat. It may be cast like ordinary glass, and may therefore be used for the manufacture of lenses, prisms, eye-glasses, etc. It can also be used as an enamel for crucibles and other earthen vessels. Hydrofluoric acid does not attack it.

GLASS BOTTLES FROM FURNACE SLAG.—
It has been proven by actual experiment that good bottles can be made from blastfurnace slag, and extensive works are now in process of erection at Finedon, in Northamptonshire, where, in a few months, "Britten's Patent Glass Company" will be producing large quantities of glass bottles from that unpromising and hitherto useless material.

The amount of Water in Dried Chloride of Gold.—Chloride of gold, such as is used in the arts and in medicine, is the crystalline hydrated acid salt, which heretofore has been considered to contain three molecules of water AuCl<sub>3</sub>, HCl, <sub>3</sub>H<sub>2</sub>O. The author has, however, by means of a series of very exact analyses of the perfectly dry salt, demonstrated that its composition is AuCl<sub>3</sub>, HCl, <sub>4</sub>H<sub>2</sub>O. This corresponds to a percentage of 47.80 of metallic gold, while according to the old formula, the percentage would have been 49.98.—Berichte der Deutschen Chem. Gesellschaft.

CINDERS IN THE EYE.—A small camel's-hair brush dipped in water, and passed over the ball of the eye on raising the lid. The operation requires no skill, takes but a moment, and instantly removes any cinder or particle of dust or dirt without inflaming the eye.

LECHER has communicated to the Vienna Academy the important fact that the specific heat of water, hitherto supposed to be greater than that of any known substance except hydrogen, is really less than that of a mixture of water with methyl alcohol, in various proportions. This mixture, therefore, has a specific heat next to hydrogen.

Dumas has called the attention of the French Academy to the presence of oxygen in metallic silver, and has shown that where silver has been used in the determination of atomic weights, and after careful purification, has been converted into minute grains

after fusion in presence of borax, nitre, and air, it is liable to absorb oxygen in amounts varying from 50 to 200 cubic centimetres per kilogram. This may cause a notable error.

THE following figures indicate the production of the precious metals in this country during 1877: Gold, \$45,300,000; silver, \$46,075,000; lead, \$2,900,000; copper, \$975,000. Total, \$95,250,000.

THE spontaneous and violent disintegration of laboratory vessels of hardened glass, is noticed by Herr A. Lamek. Some experiments are reported in the French journals as having been made with the view of determining the adaptability of the toughened glass as a substitute for the metal composition of which printers' types are made; and if our information can be relied upon, the trials have proved to be very successful.

TONING BATH FOR ALBUMENIZED PAPER PRINTS.—

Α.

 $\begin{array}{lll} \mbox{Chloride of Gold, .} & \mbox{1 gramme (15 grains).} \\ \mbox{Water, .} & \mbox{.} & \mbox{1000 grammes (34 fl. oz.)} \\ \end{array}$ 

В.

Acetate of Soda, 15 grammes (231 grains). Water, . . . 500 " (17 fl. oz.).

Pour solution A into solution B, add four drops of a saturated solution of sulphate of copper, and allow to rest for a few days. Tone until the half-tones become slightly blue. Although the prints may appear a little too red, after fixing they will be found to be perfectly toned, and the whites very pure. The fixing bath should not be too strong; about ten per cent.—M. RICHTER, in the Bulletin Belge.

Sensitizing Carbon Paper.—Mr. A. Braun, of Dornach, gives the following bath for sensitizing carbon paper, when strong negatives are used.

He dissolves the salts in the water before adding the alcohol. This last hastens the drying of the paper, preserving at the same time its flexibility. He is careful to always recrystallize the salts before using them, to

free them from the chromic acid, or chrome alum, which the commercial salts almost always contain, and which, at the slightest elevation of temperature, react on the gelatin and affect its solubility. He cites also the opinion of Mr. Kruger, who recognizing the fact that chloride of lime, or any other oxidizing substance, can render soluble insoluble gelatin, recommends the spreading of chloride of lime in the room in which the paper is kept to preserve its solubility.

CLEANING OPALINE PLATES.—Opaline glass plates, on which have been made positive prints with wet collodion, show after washing, brown spots which do not rub off. A mixture of equal parts of nitric and sulphuric acids clean so thoroughly these plates that they may be again used. They should be washed in abundant water to free them from the acid mixture.

Photographers from all directions are flocking to the Paris Exhibition for the purpose of making views. A curious assortment will follow such an arrangement if many really undertake to do the work. We do not yet know the restrictions governing those who are allowed to photograph inside the great show. We hope *some* one will do it well.

PHONOGRAPHIC PHOTOGRAPHS.—It is now said that before long we shall have talking photographs, by means of the phonograph as it is to be.

English photographers are very plucky and persistent about standing up for their rights against their customers who try to impose upon them, and it is a very frequent thing to see their suits at law reported in the photographic journals. Moreover, they generally are triumphant. Some of the cases are very curious. We are a muchabused class of people.

Two Practical Receipts.—Two practical papers have appeared in the Journal pour Chemie, which contained information that may be useful to our readers, and especially in the case of those who have much copying to do with the camera. The author is Herr E. von Bibra, and the papers relate to the restoration of faded manuscripts and old oil paintings. In some cases the

ink is not very old when it begins to grow vellow and faint, and this baffles any photographer who desires to produce a transparent image of the writing on his collodion plate, in order to turn the same into a photo-lithographic transfer, if need be. Herr von Bibra applied freshly prepared sulphide of ammonium to the indistinct passage, and in a few moments the writing begins to come out clearly. The excess of sulphide is got rid of by rinsing with cold water (the use of the wash-bottle is recommended), and the MS. then carefully dried either by gentle heat or between blottingpaper. It does not matter whether the material on which the writing appears is parchment or paper. The blacking does not last very long, but if it fades again, a solution of tannin applied in the same way will bring it out clearly once more. As it is only in the very earliest times that charcoal and India-ink were employed in MS. (and when this was done the writing is not likely to have faded), Herr von Bibra's receipt is likely to be of very general use, since gall-ink is of a very ancient character. The other matter to which we refer is the cleaning of old oil paintings so that color contrasts may be rendered more visible. The picture is freed from dust with a feather, and washed with a sponge and water. A layer of soap is then applied (the author suggests shaving soap), which is allowed to remain on for eight to ten minutes, after which the soap is washed off with a brush, and the picture left to dry. A small piece of linen cloth is then saturated with nitro-benzine, and with this the picture is cleaned. All dirt is in this way removed, and the picture stands out bold and distinct. In the end, olive oil may be applied, and subsequently a quickly drying varnish.

Mr. John McKean recently exhibited before the Edinburgh Photographic Society a new camera and tent combined. This was a very ingenious apparatus, being a perfect dark-tent for wet-plate photography in the field, and, at the same time, a camera, enabling the operator, if desired, to watch and modify the negative while being exposed, so that various times could be given

to different parts of the view, allowing a harsh, badly-lit foreground to receive sufficient exposure without overdoing the delicate distance, and also securing on the one plate an instantaneous cloud effect. A yellow window facing the scene enables the operator to select the most favorable time to impress the plate, and several original and ingenious appliances are introduced to facilitate operations, and reduce to a minimum the troubles and somewhat bulky impedimenta that the ardent wet-plate worker has to contend against compared with his dryplate brother. The whole is intended to stand on a very rigid form of tripod. The apparatus in all its details was examined with much interest, and a vote of thanks was heartily accorded to Mr. M'Kean.

In the Photographisches Wochenblatt, Herr Fritz Haugk gives directions how to prepare durable paper for glacé or enamelled pictures: Take some good albumenized paper and float it as usual on a one-to-ten silver bath. When the paper has floated long enough, which will be in about two minutes, lift it slowly up and draw it backwards over the edge of the bath, and lay it between sheets of clean blotting-paper, so that when looked at from the side it will have a perfectly equal but somewhat dull appearance, quite free from any shining, marble-like marks. In this half-dry condition the paper is laid, film side undermost, upon a bath containing

Water, . . . 400 cubic centimetres. Gelatin, . . . 5 or 6 grammes. Chloride of Sodium, 5 "

And, being repeatedly lifted up and laid down again, it is allowed to float until the gelatin film formed adheres closely and equally to the albumenized silvered film. The paper is then dried at a gentle heat and is ready for use.

Paper prepared in this way, it is said, will keep as long as washed silvered paper. Like the latter, also, it requires to be fumed with ammonia, after which it is treated like albumenized paper silvered in the ordinary way. Care must be taken not to wash off the gelatin covering, to prevent which it is advisable to keep the pictures printed on gelatin paper separate from the prints on

ordinary paper, and to use the chemicals and washing water rather cold. The water used for washing must also be perfectly free from dust or dirt, as the particles would be apt to settle on the softened gelatin.

The proportions given for the gelatin solution should also be adhered to, as, if more gelatin were added, the film would be thicker and would swell up and so be easily injured. The quantity of salt should not be increased either; as, when there is a great amount of salt present, even when the paper is well fumed, the prints are flat; indeed, the quantity of salt might with advantage be lessened. If it be wished to use the same gelatin solution several times it must be stored in the dark after each time of using, because it contains a little chloride of silver in solution.

Prints which do not require to be spotted may be placed upon the collodionized glass immediately after the last washing. A two-per-cent. collodion is used, and when it has dripped sufficiently the plate is laid in a vessel containing water until the water runs clean off. The prints adhere easily, and, with a little care, quite free from air-bubbles, to the collodion film; but, even if a few air-bubbles should be formed, they are easily removed by a slight pressure with the squeegee.

To mount the pictures: Let the print dry for five or ten minutes upon the collodionized glass; then paste the back of it with some fresh paste to which a little gelatin has been added; lay the cardboard (which has previously been moistened for a short time in water and then dried with a towel) upon it, and smooth it down with the wooden back of the squeegee. When the card sticks fast to the print, leave the whole to dry spontaneously. When perfectly dry, push the point of a knife between one corner of the print and the glass and the former will spring off.

With regard to pictures which require to be spotted, these should not be placed on the collodionized plate directly they are taken from the last washing water, but must be dried. To dry them, Herr Haugk recommends rather a peculiar plan. He sticks them, film side outwards, against a door which has been oil painted, and when they

are half dry and fall off, he spreads them out on a table to become perfectly dry. The spotting presents no difficulties, as the India-ink adheres well to the gelatin film, and had better be rubbed down in a very thin solution of gelatin. When the ink is dry, place the prints in water for a few minutes and then finish as above.

### Editor's Table.

Dr. John Nicol, the Edinburgh correspondent of the British Journal of Photography, made us a flying visit last month, and at this writing is on his way home again. He seemed pleased with his visit to Philadelphia. He is well posted on photography, and seems to take great interest in everything which pertains to it.

"PANEL" PHOTOGRAPH MOUNTS.—Messrs. A. M. Collins, Son & Co., Philadelphia, have favored us with some very tasteful and beautiful samples of card mounts, of two designs, and of seven different colors, for the new "Panel" size, accompanied by the following note:

"The appearance of Mr. G. M. Elton's new 'Panel' size in the April number of the *Philadelphia Photographer*, suggests the introduction of appropriate cards for mounting the same, samples of which we send you. Very truly,

"A. M. Collins, Son & Co."

They will doubtless be acceptable to the trade.

\$17.50.—This sum will now buy a complete camera and lens for out-door work, and twenty per cent. discount is given towards a supply of emulsion plates, or chemicals to work them with. Such an offer was never made since photography was born. What a rush there will be to the fields when this fact is widely known. Scoull Manufacturing Co., New York, are the parties who make the offer. Consult their advertisement in the Times.

BE GENEROUS.—In our supplement Mr. W. J. BAKER, Buffalo, N. Y., makes a statement concerning his contest with Mr. J. Shaw, of Bridgeport, Conn., which should be read by all concerned. And nearly every photographer is concerned, for the majority are liable to suffer just as Mr. BAKER did. Mr. BAKER, with more patriotism than most of us have, made his a test suit, hoping not only for personal benefit, but for

good to be done to the whole trade. It is only right, therefore, that he should expect a share of his expenses to be paid by the fraternity. He states the case so plainly that we can add nothing further but to say that Mr. Baker's integrity is unquestioned, and that what he says can be depended upon. We hope his generosity in standing on the defensive will be as generously responded to, and congratulate him on the result which he has secured by his pluck and energy, and we know that a good deal of both is required in such cases.

Mr. Newton's Premiums.—Mr. Henry J. Newton, of New York, has offered several premiums for negatives of various kinds, but limits the competition to photographers who live within twenty-five miles of New York. This is good as far as it goes, but surely a very limited offer. Are there no good and deserving photographers further away from New York than twenty-five miles? From such a distinguished gentleman we looked for more extended ideas.

Valuable Floor-Boards.—The floor-boards of the silvering room of the Centennial Photographic Company's building were taken up, and out of curiosity, sent to Messrs. J. F. Magee & Co., Philadelphia, to recover such silver from them as they might contain. The proceeds, after paying expenses, netted about twenty-two dollars. Pretty good return.

MR. Elbert Anderson, so well known to the photographic fraternity by his excellent contributions to photographic literature (now unfortunately very rare), and as assistant to Mr. W. Kurtz, has after eleven years co-working with Mr. Kurtz, seeded and opened a studio at No. 889 Broadway, New York, on his own account, associating with him Mr. Julius Ludovici, the celebrated artist. That Mr. Anderson will draw

a fine patronage no one will doubt. We hope soon to have the pleasure of seeing the new establishment. Everybody wishes it success. Mr. Anderson promises presently to allow us to show our readers an example of his work.

THE American Optical Co. (Scovill Manufacturing Co., proprietors), New York, have just issued another handsome illustrated catalogue. Their goods are now sold at twenty per cent. discount for cash. The best and cheapest, they are.

PICTURES RECEIVED.—From Mr. J. E. BEEBE, Chicago, we have some further excellent examples of his work of Cabinet and Promenade size. One of an old lady is a capital picture, but rivalled, we think, by one of DAVID NEAL, Esq., the famed artist. Mr. BEEBE has been stocking up with new backgrounds and accessories, and is a most careful and tasteful photographer. Some of his groups of children are very fine.

QUICK WORK.—On Tuesday morning, May 14th, one of the brick buildings (80 x 40) occupied by S. Peck & Co., New Haven, Conn., for the manufacture of photographic apparatus, etc., was destroyed by fire. Loss, \$25,000. Fifty hands were thus thrown out of work, but only for a short time, for the works were in full operation again on May 27th. Scovill Manufacturing Company, New York, are the proprietors.

NEWS OF THE MONTH .- Messrs. Blessing & Bro., of Galveston Texas, dealers in photographic materials, have sent us their new price list, neatly printed, prettily bound, and containing twenty pages. We are glad to see so much enterprise and signs of success at what we have been used to consider a point so remote from the general centre of improvement. Messrs. J. H. SATCAMP & Co. have lately succeeded Mr. Henderson George in the photographic stock business in Indianapolis. Mr. SATCAMP and his partner are both well known men in their business community, and will no doubt be able to keep all the old customers and gather many new ones. We wish them success. The Allentown, Pa., papers have given to their townsman, Mr. Wertz, a very pleasant notice. We are pleased to see this appreciation of photographic art; it is a sign of the increase of good taste, and Mr. Wertz is fully deserving of all that can be said of him. Mr. W. S. WHITE, Kalamazoo, Michigan, has just occupied his new rooms, eleven in number, with a studio 21 x 27, said to be the finest in the State. Mr. J. W. CORNELIUS, of Lewisburg, Pa., has also received a very hearty notice of commendation from the local journal of his town. This should give conrage to the struggling photographer; good work, in time, is sure to gain a good name.

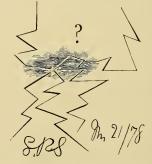
CORRECTIONS.—In our last month's journal we noticed some pictures of children sent us by Mr. JULIUS HALL, of Chicago. It should have been Mr. JOSHUA SMITH. Mr. HALL is, and has been for some years, the photographer of Great Barrington. In our advertisement of Mr. J. C. SOMERVILLE, we put him at No. 7 South Fifth Street. His proper address is No. 17 South Fifth Street, St. Louis.

CAUTION TO OPERATORS.—We have received from Messrs. W. D. MURPHY and WM. FRITZ, of Georgetown, Demarara, a communication begging us to warn operators against Mr. J. R. Anderson, photographer, of that place. These two gentlemen were, at different times, in the employ of Mr. Anderson; and from personal experience state that he is so ungentlemanly in his manner as to make the position of his employees unbearable; besides this, he makes tempting promises and breaks them at his pleasure.

Mr. Murphy states that he was unable to collect his wages from Mr. Anderson, and has no hope of ever doing so. They therefore wish to have their communication made public, to guard any other operators from falling victims to Mr. Anderson's seemingly fair inducements.

Mr. J. C. Downing, a well-known photographer, of Dallas, Texas, was found dead in his bed on May 15th, at a hotel in Waxahachie. He is supposed to have taken his own life while temporarily insane. He was popular, and much liked, and leaves a wife and five children.

WE have received the following inquiry.



Can any one help us answer it?

# Supplement.

### "Millions for Defense, but not One Cent for Tribute."

## To the holders of contracts with Jehyleman Shaw, under his alleged patent for saving silver waste, and to the fraternity generally:

Two years ago last November, I was going from New York City to Waterbury, Conn. Mr. Shaw entered the car as we were leaving the 42nd Street depot, took a seat beside me and commenced conversation, in the course of which he invited me to his house, stated several times solemnly that he should never sue any more photographers, &c. On my return, a few days after, he met me at the Bridgeport depot with a summons. Immediately after this he was very anxious to continue his civilities by accompanying me to New York, "where all this thing could be settled in a few winnts." minutes," and very much deprecated the idea of having any hard feeling.

As he had in this—to use a mild term, I will say anticipated—way made an appeal to the law, I instantly resolved to see what justice there might be in the State of Connecticut for a non-resident, and told Mr. Shaw that I should defend. It at once became very clear that he would much prefer

I came to this conclusion more readily, as several of us Buffalo photographers had previously been sued by Mr. Shaw, and also by the so-called National Photographers' Chemical Company, and they had allowed each case to go by default, after putting us to the expense of employing counsel to make answer; and as Mr. Shaw would be more likely to fight where he could have everything his own way, it seemed a good opportunity to find out what our rights were.

My case was placed in the hands of an attorney—recommended by some New York friends—

whose faithful and competent services were shown in the result.

After many delays, almost all of which were interposed by Mr. Shaw, the case was tried, and a decision given in my favor, with judgment for costs. Mr. Shaw made an appeal, but the decision of the lower court was confirmed and additional costs taxed. Still Mr. Shaw found means to make delay, but was finally obliged to pay to my attorney the amount of his bond, which had been fixed at the comparatively insignificant figure of \$75.00.

This was not a patent suit, though, much to Mr. Shaw's disgust, we made the question of the validity of his patent part of our defense, but was brought on the contract I made with him at the time of the Convention at Buffalo in 1873, when, I am informed, he forced contracts on many hundred pho-

tographers by threats of suits, etc.

I have never sent Mr. Shaw any of my waste, under that contract, as on a mature understanding of it, I concluded that it was not a just agreement, and as will be seen the courts of Connecticut, in the city where Mr. Shaw makes his home, did not recognize the validity of the contract, but did recognize

my right to save my own waste, in my own way, without subjection to any royalty from this patentee.

This is a test case, and so far I have borne the expense alone; nor do I wish to ask or receive aid from the fraternity, in the shape of charity, but in the conduct of the case we have accumulated a mass of information, relative to these contracts and the validity of the patent, and Mr. Shaw's method of obtaining contracts, etc., which is not generally known, and some of which can now be obtained

I propose to place this information at the service of photographers by subscriptions of \$5.00 each, each subscriber to receive a printed copy of the testimony, with full account of the trial, and it is certainly worth ten times that sum to any one who saves waste. It would have been cheap to me at fifty times \$5.00. My attorney, Mr. Wm. K. Townsend, of New Haven, Conn., has valued his services at \$500, which, when I consider the sums heretofore paid by photographers in suits with Mr. Shaw, bromide patents and what not, seems a very modest sum, and I could not have complained had he asked twice that. This does not include other expenses, which have been large. Subscriptions may be sent to David Tacker & Co., Photographic Stock House, Buffalo, N. Y., or to myself. Each subscriber must enclose \$1.00, with his name, which be sure to write plainly, with P. O. address in full; a printed card would be best. When the reports are ready for distribution, each subscriber will be notified, and on remitting the balance of \$4.00, will receive his copy. Should we not get enough names to warrant the expense of publishing, the \$1.00 will be returned.

Now, brother Photographers, I place this matter in your hands. I do not come before you as an eleemosynary. I propose to give each of you not only an equivalent, but a benefit for your \$5.00. I would also remind you that Mr. Shaw's power to annoy you does not expire with his patent in 1879, but his claim for damages can be sued at any time till outlawed, which, in this State, is six years from m I propose to place this information at the service of photographers by subscriptions of \$5.00 each,

but his claim for damages can be sued at any time till outlawed, which, in this State, is six years from expiration of patent. If you conclude that it is best for me to stand the whole cost of this suit, I can do it, and if Mr. Shaw or any one else has any more suits for me, I shall defend my rights in them, as I have in this.

W. J. BAKER.

# THAYER'S QUICK NEGATIVE PROCESS.

It is not pretended that this is a

# Lightning Process,

But we do claim that it will work in less time than any process hitherto introduced.

No process yet known will work *positively instantaneous* on indoor work, an appreciable time must (for such work) be given for the light to act upon the plate. We claim also that the

### BATH, COLLODION and DEVELOPER,

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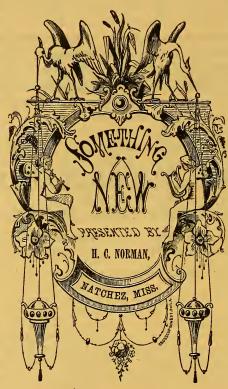
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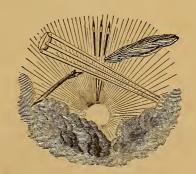
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I shall want more of the same sort when this supply is

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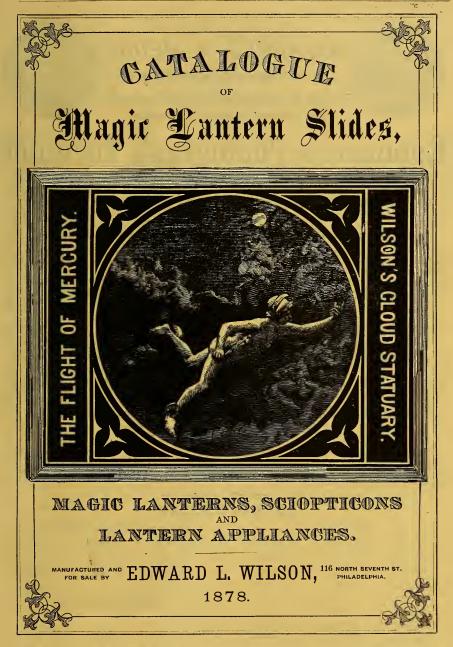
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IS A SUBSTITUTE FOR A KNIFE

FOR TRIMMING PHOTOGRAPHS, AND ODES THE WORK MUCH MORE EXPEDITIOUSLY AND ELEGANTLY THAN A KNIFE.

#### IT SAVES TIME, SAVES PRINTS, AND SAVES MONEY.

It does not cut but pinches off the waste paper, and leaves the print with a neatly beveled edge which facilitates the adherence of the print to the mount. Try one, and you will discard the knife and punch at once. For ovals and rounded corners it is worth its weight in gold.

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(Oil the Wheel Bearings with Sewing Machine Oil.)

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#### FOR USE with the ROBINSON PRINT-TRIMMER.

These Guides are Made of Stout Iron and are Turned in a Lathe, so that they are Mathematically True.

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We have the following regular sizes always on hand at 10 cents per inch, the longest way of the aperture, the fractions counting as one inch.

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#### REGULAR SIZES:

	OVALS.		Square or Round-Cornered.
$\begin{array}{c} 2 \times 2\frac{7}{8} \\ 2\frac{1}{8} \times 3\frac{1}{8} \\ 2\frac{1}{8} \times 3\frac{1}{4} \\ 2\frac{3}{8} \times 3\frac{3}{8} \end{array}$	$3\frac{1}{2} \times 4\frac{7}{8}$ $3\frac{5}{8} \times 5\frac{1}{8}$ $4 \times 5\frac{3}{8}$ $4\frac{3}{8} \times 6\frac{3}{8}$	$5\frac{3}{4} \times 7\frac{3}{4}$ $6 \times 8$ $6\frac{1}{4} \times 8\frac{1}{4}$ $6\frac{1}{2} \times 8\frac{1}{2}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$2\frac{5}{8} \times 3\frac{5}{8}$	5 x 7	7 x 9	For Stereographs.
$2\frac{7}{8} \times 4\frac{1}{4}$	$5\frac{1}{4} \times 7\frac{1}{4}$	$7\frac{1}{4} \times 9\frac{1}{4}$	Arch Tops. Round-Cornered. Round.
$3\frac{3}{8} \times 4\frac{3}{8}$	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3_{16} \times 3_4^3 \qquad 3_{16} \times 3_4^3 \qquad 3 \times 3$
$3\frac{3}{8} \times 4\frac{5}{8}$	$5\frac{5}{8} \times 7\frac{5}{8}$	$7\frac{3}{4} \times 9\frac{3}{4}$	3 x 3 3 x 3

The above sizes suit the Collins Card Mounts, and photographers knowing that they can always be had at the low price of ten cents per inch, would do well to make their sizes accord, as orders can also be filled more quickly. Ten days is required to make special sizes.

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We have now Medium Angle Doublets, all sizes. Medium Angle Doublets, all sizes. Large Angle Doublets, all sizes. Stereographic Lenses, all sizes. New Universal Lens.

Numerous testimonials pronounce them to be the best as well as the eheapest Foreign Lenses ever offered to the American Photographer. We will mail price-list on application, and promptly fill all orders.

#### NEW APLANATIC I

We now have a full stock of these Celebrated Lenses, at the following prices:

No	, 1—1-4 s	ize	, .	$3\frac{1}{2}$ i	neb	focus	, .		\$25	00	No. 5—10-12	size,		$-13\frac{1}{2}$ inc	h focus,	\$70	00
	2-1-2	44		51	44	66			30	0.0	6-13-16	66		164 "	" .	110	0.0
	3-4-4	66		7	66	-66			45	0.0	7—18-22	66				200	0.0
	4-8-10	66		101	66	"			60	0.0	8-20-24	"				350	0.0
				'AT		7 7	ο.			. 1	· . C			. 1			

Nos. I and 2 are in matched pairs for stereoscopic work.

We feel sure that at least one of these lenses is needful for the successful prosecution of your business, and so solicit your orders.

WE MANUFACTURE, IMPORT, AND DEAL IN ALL KINDS OF

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at prices as low as are consistent with the quality of goods furnished. We are indebted to our customers for their patronage during the past Thirteen Years, and our efforts shall be to merit a continuance of it. We have been appointed Trade Agents for

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## Fine Studies in Photography

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#### NEW PRIZE SERIES

include work by a variety of artists, but an unusually large variety of subjects, positions, and methods of treatment. Hence the more useful are they as studies.

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#### \$3.00 PER DOZEN,

all around. Parties can order in sets, or by the following numbers:

No	. 1	to	6,	from	negatives	by.			G. M. Elton.
"	7	"	12,	"	"				Bradley & Rulofson
u	13	"	18,	11	"				D. H. Anderson.
"	19	"	24,	"	" "				Cook Ely.
44	25	"	30,	"	66				C. W. Motes.
"	31	"	36,	u	"				C. W. Tallman.
					u				J. H. Todd.
"	43	u	48,	"	"				M. T. Baldwin.
"	49	"	54,	"	"				J. H. Beebe.
			60,		"				L. M. Roberts.
			66,		"				J. H. Lamson.
44	67	"	72,	"	"				A. Hesler.
44	73	"	78,	"	· · ·				Julius Hall.
"	79	"	84,	44	ш -				R. W. Dawson.

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#### WAYMOUTH'S VIGNETTE PAPERS.

THEY ARE NOT CLUMSY; DO NOT BREAK; ARE ALWAYS READY; COST BUT LITTLE,
AND ARE EASY OF APPLICATION TO ANY NEGATIVE.

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#### PRICES:

In parcels containing or	e of e	ach size, N	os. 1	to 15, assor	ted colo	ors, · .					\$1	00
Assorted sizes and color	s, bý r	numbers, pe	er pa	ckage of fift	een, .						1	0.0
Nos. 1, 2, 3, 4, and 5, as												
" 6, 7, 11, 12, and 13	"	"	"	Large Cart	es and	Victorias	, by numbe	r, per	· do	z.,		75
" 8, 9, 10, 14, and 15	"	и	"	Cabinets a:	nd Who	le-size,	"	46			1	00
" 16, 17, and 18,	"	ee	6	Half '	، ،	4	66				1	25

#### (SEE OPPOSITE PAGE.)

When ordering, state the number and color you want.

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THE FOLLOWING USED

## Printing Frames,

A lot of A. O. Co.'s 5 x 8 flat, at 30 cents—good as new. Also, a few of 8-10, 10-12, 13-16, 20-24 Printing Frames, American Optical Co.'s make, very low, in lots.

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A few of 5 x 8 and 8 x 10 size for sale.

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For Photogr	Per dozen.									Per hundred.					
Card Size	€,						\$1	50						\$10	00
Cabinet S	size	∋,					2	25						13	50
EXTRA HEAVY COV	ERS	š.							-						
5-8 Size,							4	50						33	00
4-4 "							6	00						40	00
8-10"		•					8	00						56	50
11-14"							9	00						65	00

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## Philadelphia Photographer.

Vol. XV.

JULY, 1878.

No. 175.

Entered according to Act of Congress, in the year 1878,

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#### EXCURSION OF PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

BY JOHN C. BROWNE.

FOR many months the members of this Society have anxiously looked forward to their annual excursion, which had been arranged for Monday, May 27th, 1878. Last year's trip having proved so enjoyable, it was determined to repeat in a measure its peculiar charm, by again travelling over a canal. The plan offered by Mr. Barrington, chairman of the Excursion Committee, was fully discussed at the May meeting of the Society, and was adopted. The proposed journey commenced at Philadelphia, taking in Wilkesbarre, Nanticoke, Berwick, Northumberland, Bloomsburg, Catawissa, Danville, Millersburg, Dauphin, Harrisburg, and back to the starting-point, going over a distance of three hundred and seventy-five (375) miles. The only railroad travelling was from Philadelphia to Wilkesbarre, in starting, and from Harrisburg to Philadelphia on the return. The water portion of the trip was over the Wyoming division of the Pennsylvania Canal.

The members started on the day appointed from the depot of the North Pennsylvania Railroad, and after a delightful ride along the Lehigh River, arrived at Wilkesharre early in the afternoon, where the canal-boat, or barge, was found in waiting. Having

previously mentioned this boat in a report of the last photographic excursion, it may be of interest to give a short description of the craft. Through the kindness of Mr. T. C. Zulick, Superintendent of the Schuylkill Canal, the Photographic Society were again permitted to use this barge, which is, properly speaking, a pay boat. It is about fifty feet long, having an upper and lower deck, the middle portion of the latter being divided so that a large room is in the centre, with kitchen, store-rooms, and steering arrangement at the rear. Forward of the parlor, or dining-room, are closets, one of which was prepared for a dark-room. The upper deck was the favorite rendezvous of the party, the only drawback to its enjoyment being the constantly repeated caution of "low bridge," which caused most profound homage to be given to the grasshoppers, as they are familiarly named; otherwise, a stunning blow upon the head would be the reward for disobedience. After putting all the supplies on board, sufficient for a five days' trip, we spent the night at the Wyoming Valley House, which is beautifully located close to the bank of the Susquehanna River, and is a most comfortable and well-kept hotel.

On Tuesday an early start was made, and the entire party assembled on the boat, taking with them an amount of photographic apparatus that was perfectly bewildering. For the information of photographers, I will give the names of the party, and describe the different outfits used.

Charles Barrington, 7 x 9 camera box of his own manufacture; Ross portable symmetrical lens, ten inches focus; one dozen Partridge's emulsion dry plates.

Thomas H. McCollin, 5 x 8 box made by Anderson, Chicago; Dallmeyer rapid rectilinear lens, eleven inches focus; Steinheil, seven inches focus; thirty of McCollin's bromo-iodized dry plates.

Samuel Sartain,  $5 \times 8$  American Optical Company box; Zentmayer lens,  $5\frac{1}{2}$  and  $8\frac{1}{2}$  inches focus; thirty of McCollin's bromoiodized dry plates.

George B. Dixon, 5 x 8 American Optical Company box; Ross wide-angle lens, six inches focus; Steinheil lens, twelve inches focus; thirty of Bell's and Partridge's dry plates.

S. Fisher Corlies,  $6\frac{1}{2} \times 8\frac{1}{2}$  box, by Peace;  $3\frac{1}{2} \times 7$  box, by Dunton; Globe lens, six inches focus; Jamin single stereo lenses, six inches focus; forty-six of Bell's, Young's, and Partridge's dry plates.

C. R. Pancoast,  $4\frac{1}{2} \times 7$  box, his own construction; Morrison stereo lenses, four and one-half inches focus; Ross rapid symmetrical, seven inches focus; forty-one of Young's and Partridge's dry plates.

William Hacker, 4½ x 7½ Hare's English box; Ross rapid symmetrical lens, seven inches focus; nine of Young's emulsion dry plates.

Samuel M. Fox, 7 x 9 box, by Peace; Dallmeyer rapid rectilinear lens, thirteen inches focus; thirty-six of Partridge's, Young's, and Bell's dry plates.

Frank M. Dealy,  $4\frac{1}{1} \times 6\frac{1}{2}$  stereo box; Darlot lenses, six inches focus; thirty of Young's emulsion dry plates.

John C. Browne, 5 x 8 American Optical Company box; Dallmeyer rapid rectilinear lens, eleven inches focus; Dallmeyer rapid rectilinear lens, six inches focus; twentynine of Young's emulsion dry plates.

Mr. C. M. Gilbert was the only one of the party who did not take a camera, but a trout-rod was very useful in his hands, and added variety to our table. The boat was drawn by three quick stepping mules, who made rapid progress down the canal. The first stop was at Nanticoke. At this place

the Susquehanna Coal Company are engaged in extensive mining operations, but at present the mines are not being worked. The location of Nanticoke is one of the most beautiful on the river, and was long a favorite resort of the Indians. From one of these tribes the place derives its name. We then followed the canal in its windings, keeping close to the north branch of the Susquehanna River. The scenery is charming all along the canal, but, with few exceptions, the subjects are not those that make the best photographs. After making a number of exposures from Nanticoke to Berwick, the boat was tied up to the bank, and we all sought a night's lodging at the hotel close by.

While floating along the canal the party, as I have mentioned, generally occupied the upper deck, on the lookout for objects of interest. When passing through a part of the country not prolific with subjects for the camera, meetings were held, and deeply scientific discussions upon various subjects were indulged in, much to the entertainment of the company. On the first day out a meeting was held, presided over by Mr. Corlies, when it was, on motion,

Resolved, That the members on this excursion will contribute a small sum, sufficient to purchase a suitable badge, to be lettered "Champion, 1878," which shall be awarded to the member offering the best print from a negative made during the present trip, the understanding being that but a single negative shall be used in making the print, and that retouching may be used to a limited extent. The badge of honor to be awarded by a vote of the excursion party, and to be retained by the fortunate individual.

One incident occurred that may be mentioned. The boat upon which we were travelling had no name to designate her from an ordinary canal-boat, so the brains of the party were set to work to produce one suitable to the occasion. After many suggestions, the name *Zuleika*, proposed by Mr. Sartain, was accepted as a very proper recognition of the kind services rendered by Mr. Zulick to the Photographic Society. The boat was formally christened *Zuleika*, and the name, painted by one of the party, fastened on her bow.

A very early start was made on Wednesday morning from Berwick, but the day was not suited for our work, being very windy with slight rain. Northumberland was our next resting place. It is situated at the junction of the north and west branches of the Susquehanna River. We had hoped to have made many pictures in this neighborhood, but the next day, Thursday, was excessively gloomy, opening with a rain storm, and continuing nearly all day. Passing Liverpool, we crossed the river to Millersburg, where we stopped for the night. Friday was disagreeable, with some rain and much wind, but in spite of the weather many pictures were made about Duncan's island. Towards evening we arrived at Dauphin, and were pleasantly accommodated at a very good hotel. Saturday, being the last day of the excursion, all the party were at work very early, trying to capture some of the charming bits along Stony Creek, which abounds with photographic subjects. Our next halt was at Rockville, where the Pennsylvania Railroad crosses the Susquehanna over a double-track iron bridge, about one mile long. Here many plates were exposed in the efforts of the members to obtain pictures of the boat and party, but owing to the force of the wind it was impossible to expect fine results. Oftentimes during an exposure, hats were blown off the heads of sitters, and cameras only saved from a tumble by holding the tripods on the ground. images will no doubt be found in considerable numbers when the plates are developed.

As only a short distance of canal travel remained for us, we occupied the interval with packing up our traps, and soon our usually neat little boat was in frightful confusion, with a mass of crockery, glass, and cooking utensils, mixed up with cameras, tripods, hand-bags, fishing-rods, etc.; at last all the articles were arranged, and upon arriving at Harrisburg the packages were safely transferred to the cars. We then bid good-by to the *Zuleika*, and returned safely to Philadelphia at 7.45 P.M.

I will give the number of plates exposed each day upon the trip, and in a future communication I hope to be able to say that, notwithstanding the unfavorable circumstances attending the trip, that photographically it was a success.

NUMBER OF DRY PLATES EXPOSED.

	1st Day.	2d Day.	3d Day.	4th Day.	5th Day.	Total.
Pancoast	4	4	0	4	6	18
McCollin	6	4	0	4	6	20
Dixon	4	6	0	6	5	21
Barrington	2	3	0	5	2	12
Dealy	6	8	0	7	3	24
Corlies	6	7	1	3	9	26
Fox	6	5	0	2	8	21
Sartain	4	4	0 -	2	6	16
Hacker	4	3	0	0	0	7
Browne	2	3	0	6	6	17
	44	47	1	39	51	182

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 166.)

THLORINE (atomic weight, 35.5; sym-J bol, Cl.)—Chlorine (a word from the Greek, and meaning green, from the color of the gas) is, at the atmospheric pressure, a gas having a yellowish-green color, and an unpleasant, irritating odor, producing, when inhaled, irritation of the throat and coughing, and even, in extreme cases, death. It is heavier than air, and absorbed by water with great rapidity. It will not burn, but supports combustion after a fashion; a candle being placed in it burns with a reddish flame, giving off a great amount of smoke. Many metals, if they be brought in contact in a finely divided state with chlorine, will burn, owing to the direct uniting of the metal and the gas. Many organic compounds will also burn in this gas, owing to the uniting of the chlorine with the hydrogen of the body. Indeed, if equal volumes of hydrogen and chlorine be brought together in the sunlight, they will unite with an explosion, but will still occupy the same space. If the experiment be performed in subdued light, the combination will take place gradually; and if in the dark, not at all. A spark of electricity or of fire will be sufficient to produce their instant combina-

The substance resulting from this combination is hydrochloric acid, chlorohydric acid, muriatic acid, or hydric chloride, HCl. It, at the usual atmospheric pressure and temperature, is a gas, having an acid taste and a pungent odor; irritating to the eyes, and when inhaled, nose and throat, producing coughing. In damp air it fumes, owing to its uniting with the moisture of the atmosphere. Under forty atmospheres pressure it is condensed to a limpid liquid. But for general uses its great affinity for water is made use of, and a solution of it in water is used whenever the acid is required. The acid unites with bases to form chlorides\* (the great affinity of chlorine and hydrogen for each other is utilized in several ways. Chlorine, when passed through water, will take the hydrogen from the water, liberating the oxygen, which latter will then unite with something else, oxidizing it, of course; hence chlorine in the presence of water is an oxidizing agent. This reaction does not take place though unless there is something for the oxygen to unite with; that is, chlorine cannot take the hydrogen from the oxygen, leaving the latter to pass off in a free state. This oxidizing property is what makes chlorine a bleaching agent, the oxygen doing the bleaching). The series of oxides of chlorine would be: 1, hypochlorous oxide, Cl<sub>2</sub>O; 2, chloric trioxide, Cl<sub>2</sub>O<sub>3</sub>; 3, chloric tetroxide, Cl2O4; 4, chloric pentoxide, Cl<sub>2</sub>O<sub>5</sub>; 5, chloric heptoxide, Cl<sub>2</sub>O<sub>7</sub>. Of these the first three have actually been obtained; the remainder are only theoretical.

Hypochlorous oxide, or hypochlorous anhydride ( $\mathrm{Cl_2O}$ ) is a deep red liquid, emitting a vapor of a deeper color than chlorine, and

of an irritating odor. The liquid is easily decomposed. The heat of the hand is sufficient to decompose it with enough violence to cause an explosion. With water, it forms hypochlorous acid, or hydric hypochlorite, HClO ( $\rm Cl_2O+H_2O=2HClO$ ), which, in a concentrated form, is very unstable, being decomposed into chlorine and chloric acid. It is a powerful oxidizing agent, and a stronger bleaching agent than chlorine. It, or some of the salts which it forms with bases (hypochlorates), are much used for the latter purpose.

Chloric trioxide, or chlorous anhydride (Cl<sub>2</sub>O<sub>3</sub>), a deep yellowish-green gas which is very explosive, and forms with water

Chlorous acid, or hydric chlorite,  $HClO_2$  ( $Cl_2O_3+H_2O{=}2HClO_2$ ), an acid possessing bleaching properties and forming with bases salts called chlorites.

Chloric tetroxide, or peroxide of chlorine  $(\mathrm{Cl_2O_4})$ , is, at the usual temperature and pressure, a gas of a very deep yellowish-green color, which on a slight pressure or lowering of temperature, is condensed to a red liquid, which is very explosive. Its corresponding acid would be  $\mathrm{H_2Cl_2O_5}$  ( $\mathrm{Cl_2O_4} + \mathrm{H_2O} = \mathrm{H_2}$   $\mathrm{Cl_2O_5}$ ), but no such acid has ever been separated, nor any salts of such an acid obtained.

Chloric pentoxide, or chloric anhydride  $(Cl_2O_5)$ , the next oxide, theoretically, has never been found, but the corresponding acid is well known, namely:

Chloric acid, or hydric chlorate, HClO<sub>3</sub> (Cl<sub>2</sub>O<sub>5</sub>+H<sub>2</sub>O=2HClO<sub>3</sub>), is, when in a concentrated form, of a syrupy consistence. It is a strong oxidizing agent, and rather unstable, decomposing by the action of the light or temperature into oxygen, chlorine, and perchloric acid.

Chloric heptoxide, or perchloric anhydride  $(Cl_2O_7)$ , is also only theoretical, never having been separated. Its corresponding acid is

Perchloric acid, or hydric perchlorate, H ClO<sub>4</sub> (Cl<sub>2</sub>O<sub>5</sub>+H<sub>2</sub>O=2HClO<sub>4</sub>), is a colorless liquid and quite volatile. It is the most permanent acid of chlorine known, and the most powerful oxidizing agent in existence. If brought in contact with carbon, the oxidation will be sufficiently brisk to cause a very violent explosion. It forms with bases the series of salts called perchlorates.

<sup>\*</sup> Mention should be made here of a mixture of nitric and hydrochloric acids, forming what is called nitro-muriatic acid, or aqua regia. It is used to dissolve gold and platinum, from which property it obtained the name aqua regia (kingly water, or kingly liquid, gold being "the king of metals"). Neither nitric nor hydrochloric acids, when alone, have any effect on gold or platinum, but when mixed, the metal is attacked and dissolved. The reaction being that the acids decompose cach other and free chlorine is liberated, which at once attacks the metal and forms a chloride.

Bromine (atomic weight, 80; symbol, Br), was discovered in 1826 by Balard. It exists in sea-weeds, sea-water, and in many salt springs. It derives its name from a Greek word signifying "an odor," on account of the unpleasant odor of the fumes of the substance, which, when inhaled, even act as a strong poison. Bromine is a heavy liquid (excepting mercury, it is the only one of the elements that is liquid at the usual temperature and pressure), of a very deep red color. It is very volatile, giving off dense red vapors, resembling very much "nitrous fumes." It is to some extent soluble in water, is an oxidizing agent in the same manner as chlorine. Like chlorine it is a bleaching agent. although not to the same degree. Indeed, it resembles chlorine in most of its properties. Like chlorine it forms a hydrogen acid.

Hydrobromic acid, or hydric bromide (HBr), a colorless gas, possessing irritating properties and a strong acid reaction. When used (which is very, very seldom) it is as a solution in water, similar to hydrochloric acid. It forms with bases a series of salts known as bromides.

The oxygen acids of bromine are of but slight importance. By the analogy of chlorine there must be the same number of oxides and corresponding acids, but so far none of the oxides and but few of the acids have been isolated. There may be mentioned, however, as of some importance,

Bromic acid, or hydric bromide (HBrO<sub>3</sub>), which is not made use of in the free state, but which forms a series of salts called bromates.

Iodine exists in sea-water, sea-weeds, some mineral springs, and in one or two minerals. It was accidentally discovered in 1811, by Courtois. It is, when in a free state, in crystals or in crystalline plates of a bluish-black color. When heated, it melts, boils, and passes into a vapor of a beautiful purple color, from which characteristic it obtains its name (iodine being derived from a Greek word meaning violet colored). It is to some degree volatile in the air, giving an odor resembling that of chlorine in a feeble way. It is slightly soluble in water, and freely soluble in alcohol, ether, or solutions of the

iodides. When taken internally in large doses it is poisonous, but when in small doses it is a quite valuable medicine. It is particularly efficient for external use. It possesses many properties possessed by chlorine and bromine, but to a much less degree than either of them. Like chlorine and bromine, it has one hydrogen acid.

Hydroiodic acid, or hydric iodide (HI), a gas, fuming in the air, and possessing a strongly acid reaction. It is quite rapidly dissolved in water, and may even be obtained in a liquid form by a strong pressure. It forms with bases a series of salts called iodides.

There have been two oxides of iodine recognized, iodic pentoxide, or iodic anhydride  $(I_2O_5)$ , and iodic heptoxide or periodic anhydride  $(I_2O_7)$ . The acid corresponding to the first of these is iodic acid or hydric iodate (HIO<sub>3</sub>), which forms iodates with bases. The acid corresponding to the heptoxide is periodic acid or hydric periodate (HIO<sub>4</sub>).

Before passing to the next substance, it may not be out of place to speak of the similarity of the three last mentioned substances, chlorine, bromine, and iodine. A similarity which has caused them to be united into a class called, as before mentioned, halogens, and which is so apparent that it cannot fail to be noticed by the most casual observer. We have the three elements, chlorine, brominc, and io-Chlorine is transparent, bromine translucent, and iodine opaque; the first a gas, the second a liquid, and the third a solid. The first having an atomic weight of 35.5, the third one of 127, and the second one of 80, as near a mean between the other two as may be. And further, the first has a specific gravity of 2.47; the third, when in a gaseous form, one of 8.71; and the second, in gaseous form, one of 5.54, a mean between those of the first and third. The properties of the three are similar, being possessed by chlorine to the greatest degree, by iodine in the least, and by bromine intermediately between the two. Then again the three unite with hydrogen in exactly the same manner to form hydrogen acids; they often replace hydrogen, either partially or completely, in various compounds. Their salts of the same

metal are isomorphous, that is to say they crystallize in the same forms; for example, potassium chloride, potassium bromide, and potassium iodide, crystallize in the same form, that is, in cubes. They each form oxides and corresponding acids according to the same plan, although some of the oxides and acids are wanting with each element. In a word, they each possess characteristics so strikingly and decidedly alike that they together form a class of substances more clearly defined than any other, in which the various elements have been divided.

FLUORINE (atomic weight, 19; symbol, F).

—Fluorine has so many characteristics similar to the three elements last mentioned, that it is generally classed with them. It is a most difficult thing to obtain it in a free state; all processes similar to those used for obtaining chlorine, bromine, and iodine, fail completely. But by using silver fluoride and iodine, fluorine is obtained in the form of a colorless, permanent gas. One thing remarkable about flourine is that it forms no oxide, nor any compounds with oxygen. There is, however, one acid.

Hydrofluoric acid, or hydric fluoride (HF).—This acid is a colorless, volatile liquid, fuming very strongly in the air. It is very dangerous on account of its caustic action on the skin, a slight drop producing a painful wound. When poured into water it unites with it with a hissing sound, and producing great heat. The most useful property of the acid is its power to etch glass, which is made use of as a test for the acid; also for the purpose of producing various devices upon the glass.

Sulphur (atomic weight, 32; symbol, S), a well-known substance that occurs in nature in its free state. In commerce, it is obtained either in round sticks called "brimstone," or "roll sulphur," and in a coarse powder called "flowers of sulphur." It exists in various different forms: thus, in the crystal-[1815/130 & ui ! earned ui punoj su 'uiloj euil line form, obtained by melting the sulphur and allowing it to cool, when it crystallizes in an entirely different form from that found in nature; and thirdly, in a soft, gummy form, obtained by heating the sulphur up to a temperature of five hundred degrees Fahr., and then suddenly cooling it, by

pouring it in a thin stream into cold water; this variety returns to the usual brittle kind after an exposure of two to three hours. Sulphur is very inflammable, taking fire when heated in the air at a temperature somewhere around five hundred degrees Fahr. When heated, it commences to fuse at two hundred and thirty-nine degrees Fahr.; is a transparent, yellow, and quite limpid liquid at a temperature of two hundred and sixty-five degrees; as the heat rises, the color deepens through brown almost to black. At about three hundred and fifty degrees, the liquid becomes viscous and like treacle; it can then hardly be poured. When the temperature reaches four hundred and fifty degrees, it again becomes more liquid, although not to so fluid as when first fused; it is then a dark, reddish-black, thin liquid, which it remains until the temperature reaches nine hundred degrees, when it boils and gives off red-colored vapor, which may be distilled.

There are two compounds of hydrogen and sulphur, the first of which is

Hydrosulphuric acid, dihydric sulphide, or sulphuretted hydrogen (H<sub>2</sub>S), a colorless gas with a most disgusting odor, resembling that of rotten eggs. The gas is inflammable, burning with a pale blue flame, and forming water and sulphuric dioxide, if sufficient air be present; if not, sulphur is deposited. It is quite poisonous if inhaled, although diluted with air. It is quite soluble in water, which fact is made much use of in analytical chemistry, hydrosulphuric acid being a very important reagent in analytical chemistry. The gas, when subjected to a heavy pressure, may be condensed to a liquid. With bases it forms salts known as sulphides. The other compound of sulphur and hydrogen is

Persulphide of hydrogen, or dihydric disulphide (H<sub>2</sub>S<sub>2</sub>), resembles hydric dioxide very much; it bleaches, and is most easily converted into hydrosulphuric acid; its instability signifying that it is not a "saturated compound."

There are but two oxides of sulphur known in the free state, sulphur dioxide  $(SO_2)$ , and sulphur trioxide  $(SO_3)$ , and while there are several theoretical ones in acids, there are but three oxygen acids of sulphur that are

of importance enough to consider here: Sulphurous acid,  $H_2SO_3$  (from sulphur dioxide,  $SO_2+H_2O=H_2SO_3$ ), sulphuric acid,  $H_2SO_4$  (from sulphur trioxide,  $SO_3+H_2O=H_2SO_4$ ), and hyposulphurous acid,  $HS_2O_3$  (from the theoretical oxide  $S_4O_5$ ,  $S_4O_5+H_2O=2HS_2O_3$ ).

Sulphur dioxide, or sulphurous anhydride (SO<sub>2</sub>), generally, though incorrectly, called sulphurous acid. A gas produced by burning sulphur; it has a suffocating, pungent odor (witness the unpleasant effect of a burning "sulphur match"). It is a colorless gas, which may, by cooling or by pressure, be condensed at first to a colorless liquid, and even to a transparent solid. It is heavier than air, combines very easily with water to form the true sulphurous acid, H2SO3, but it is easily decomposed by heat into its constituents. It is used as a bleaching agent, and bleaches probably by forming colorless salts with the coloring matter. It does not decompose the color like chlorine, as by the use of an alkali it (the color) may be restored. It is used also as a disinfectant. It is a powerful antiseptic; in analytical chemistry it is sometimes employed as a reducing agent. It forms with bases salts called sulphites, either acid salts or neutral salts, as all or only half the hydrogen is replaced by a base; thus sulphurous acid, or dihydric sulphite (HoSOo), forms acid potassium sulphite, or hydric potassium sulphate (HKSO<sub>3</sub>), and potassium sulphite, or dipotassium sulphite (K,SO3), as the case may be.

Sulphur trioxide, or sulphuric anhydride (SO<sub>3</sub>), can be formed by SO<sub>2</sub> and O, existing in the form of silky needles; it can be kept, but with difficulty, as it unites very easily and violently with water, forming

Sulphuric acid, or dihydric sulphate (H<sub>2</sub> SO<sub>4</sub>), frequently called in common parlance oil of vitriol. This is the most useful acid known, and used more extensively and for more varied purposes than any other. It is an oily, colorless liquid, nearly twice as heavy as water. It is very caustic in its action, charring organic matter very readily. It has a great attraction for water, and when uniting with it develops quite a high heat. Its attraction for water extends to the vapor of the atmosphere, from which fact it is often employed as a "desiceating agent,"

that is, for the purpose of removing the moisture from the air, and making a perfectly dry atmosphere.

Sulphuric acid forms with bases sulphates, either acid or neutral, as the case may be.

Hyposulphurous acid, or hydric hyposulphite (H<sub>2</sub>S<sub>2</sub>O<sub>3</sub>). An acid that has not been obtained in the free state, and known only in its combination with bases, as hyposulphites, of which the most important, perhaps, is sodium hyposulphite. The property by which it forms double salts with those salts of silver which are insoluble in water, which double salts are soluble in water, being made use of in photography for the purpose of fixing the image, as is very well known.

Before leaving sulphur, there is one of its compounds that is so useful, and whose usefulness is increasing so rapidly that it cannot be passed over in silence; it is

Bisulphide of carbon, or carbon disulphide (CS<sub>2</sub>). If the vapor of sulphur be passed over red-hot charcoal, this earbon bisulphide is formed; it condenses to a heavy, volatile, colorless liquid, possessing an odor than which as yet none has been discovered or invented that surpasses it in disagreeableness; it is very inflammable and poisonous. The liquid itself has an acrid, pungent taste. It is insoluble in water, but freely soluble in alcohol and ether. Its great importance is due to the fact that it is an excellent solvent of sulphur, phosphorus, caoutchouc, gums, oils, and fats.

The parallel between sulphur and oxygen is very striking; they are the only two elements that easily unite with carbon. We have  $\mathrm{CO_2}$  and  $\mathrm{CS_2}$ ; there are also  $\mathrm{H_2O}$  and  $\mathrm{H_2S}$ , and even  $\mathrm{H_2O_2}$  and  $\mathrm{H_2S_2}$ ; and what is more strange, these compounds resemble each other in more ways than in their formulæ only.

(To be continued.)

LES MONDES says that "mania metaphysica" is a newly recognized form of mental disease. It affects young people mostly, and its marked symptoms is a tendency to make constant and useless inquiries as to the why and wherefore of things. The patient ought to be treated with small doses of potassium bromide. Photographers have the remedy handy, but should not make haste to take it.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 7.

Posing and Lighting.

I SHALL now quote rather liberally from the writings of Mr. H. P. Robinson. There is no better living authority upon the subject, and his remarks are particularly pertinent to the title of this series.

"The application of photography to portraiture has reformed, and almost revolutionized, that art throughout the world; yet ninety-nine out of every hundred photographic portraits are the most abominable things ever produced by any art, and the originals of them may often truly say, with the old Scotch lady who saw her own portrait for the first time: 'It's a humbug sicht; it's indeed a sair sicht.'

"This is not the fault of the art itself, but of those who, on the strength of being able to dirty a piece of glass with chemicals, are pleased to dub themselves artists. The late depression in the trade has done good in one respect, if it has borne rather hardly on some; it has killed off the weak ones—those who never should have left the occupations for which only they were fit, to discredit by their miserable productions a noble profession; for photography is a noble profession, although it is a mean trade. Photography has hitherto been a refuge for the destitute,

"A mart where quacks of every kind resort,

The bankrupt's refuge and the blockhead's

forte."

"Again, the photographer has not often the advantage, enjoyed by the painter, of making the aquaintance of his sitter before he takes the portrait. He often sees him for the first time as he enters his studio, and has done with him in a short quarter of an hour. It requires great perception of character and great fertility of resource to enable him to determine at once, and at a glance, what is best to be done, what expression he should endeavor to call up, and what position would best suit his sitter.

"As I am dealing with principles only, I shall not give any illustrations of poses

which could be of very limited application, and would only induce in the student a habit of servile imitation, very detrimental to originality, and unworthy of him who would call himself an artist. An inferior photographer may find a few illustrations of different poses of some use to him, inasmuch as they may assist him in varying his one pose; instead of the one pose beyond which his feeble imagination will not allow him to venture, they may give him the use of three or four. But if he will take the trouble, or has sufficient ability to master principles, he will find himself possessed of a continual fund of ideas ready for use, as is necessary in successful portraiture, at a moment's notice. If he have not the ability and patience to master the few principles on which his art is based, I hope he will excuse me if I hint that he had better try some other means of being of use to his fellowcreatures, for he would be only doing mischief to photography by continuing in the profession.

"Besides being of very little use, there is also actual harm in a 'set' of poses the structure of which is not understood, as will be seen if a sitter is allowed to select the position in which he will be taken—a pose, exactly suited as it might have been to the person represented, but probably no more proper for him than would be the costume attitude of a medieval warrior to a modern merchant, or than the simple elegance of a Greek statue to a sea-captain.

"Sitters often want to be made to look like other people, or rather, they think that if they sit in the same position, and attempt the same expression, they will look as well as some example they have seen. It constantly occurs that persons will come into the reception-room, and selecting a portrait of another, totally unlike in age, style, and appearance, will say: 'There; take me like that.' Peter Cunningham gives an anecdote that may, possibly, be out of place here, but it is too good to omit. When Bernard Lens was drawing a lady's picture in the dress of Mary, Queen of Scots, the fastidious sitter observed: 'But, Mr. Lens, you have not made me like Mary, Queen of Scots!' 'No, madam,' was the reply; 'if God Almighty had made your ladyship like her, I

would.' The same may be said on behalf of the lenses of the present day.

"Other sitters endeavor to improve their faces by all manner of contortions; stare with their eyes to make them larger, and screw up their mouths to make them smaller. It is a bad plan to allow the sitter to become reminded of particular features. Many photographers keep a cheval glass in their studios, to enable sitters to look at themselves while the exposure is proceeding. are rare cases where the practice may be beneficial, but on the majority of subjects it has a very bad effect. I have tried it in my own practice, and found it was a great temptation to the sitter to make the most ridiculous contortions of the face, in the hope of calling up a satisfactory expression.

"A good deal depends on the temper of the sitter at the time of sitting. If he come in a great hurry, and feel bored by the operation, good results cannot be expected. Engagements should be made that sitters should not be kept waiting. This is not so difficult to manage as may appear.

"Be punctual, and exact punctuality. Do not accept pictures to do in half an hour that should have more than double that time allotted to them. It is impossible to make a hungry man look happy.

"It almost constantly happens that the photographer sees his sitter for the first time as he enters the studio. Thus he has no opportunity of studying the characteristic attitudes or expression, or the best general arrangement or effect. This difficulty is almost insurmountable, but can be most nearly overcome by an intimate acquaintance with the rules of art, which will enable the artist to think quickly, and make all his arrangements without hesitation, thus allowing him more time to study character. The figure should not be posed until everything is ready, and then the final arrangements should not take a minute. This can only be done when the operator quite knows his business, and has thoroughly made up his mind what he is going to do. He should be able to see the finished result in his mind's eye from the beginning. There is nothing so irritating to a sitter as being kept waiting after being posed; he begins to feel he is in a ridiculous position, when it should be the object of the photographer to prevent him thinking that he is in a position at all. A well posed figure may be easily upset by a bungling use of the head-rest. Much depends upon the judicious employment of the head-rest (let us lay it down as an axiom that this instrument is indispensable, even for short exposures, say of five or six seconds). The rest should be understood, in ordinary cases, to be a delicate support, not a rigid fixture against which the figure is to lean. There is another rule that photographers should regard as axiomatic: the rest should be moved to the head, not the head to the rest; first the pose, then the rest; not first the rest and then the pose. In my own practice, I prefer a very light, simple rest, of the old American pattern, without any complications; one so light that I can carry it about after the sitter without trouble.

"It must be borne in mind that in a good photographic portrait, as in a painted one, it is expected will be produced—

"Not the form alone
And semblance, but, however faintly shown,
The mind's impression, too, on every face."

Here the educated photographer has a great advantage over those who are less fortunate. He will endeavor to so entertain his sitter that he will feel more at ease than if he were taken into a strange room, fixed incontinently in a chair, and photographed. It will be found that not only the expression will be improved, but that pictorial effect, as regards arrangement of lines, will also be much improved by the increased ease the sitter feels as he becomes more familiar with the studio and the student.

"It is more than probable that an objection to 'sit' has been engendered by the brusque manners, and rough, uncourteous, and conceited behavior of photographers themselves. A certain amount of self-confidence, if there is any basis for it, reacts favorably on the sitter, but it should not be carried too far, or some sensitive people may consider it amounted to rudeness.

"A good deal depends on such an apparent trifle as the manner of taking off the cap of the lens and exposing the plate; and there is as much difference in the method of performing this simple operation as there is

difference of opinion amongst photographers on any other circumstance connected with their art. One will shout: 'The exposure's a-going to begin!' in such an angry and threatening tone that you feel inclined to call the police; while another will so smother you with the suavity of his manner that you feel ashamed of troubling him. The first rarely succeeds in anything but disgusting his customers; the other oppresses them by over politeness. It is evident that some course between these two is the correct one. The photographer must have a strong will to enable him to carry out his idea as to arrangement, and sufficient subtlety to do so, and at the same time please his subject.

"Long experience will show that the two sides of every face differ. This is very evident in many faces, and in all, however regular the eyes may seem, or however straight the nose may appear, close observation will discover that one side is better than the other. It is this side that should be taken.

"In photographic portraiture the face should, as a general rule, be turned away from the light. If the face is turned to the light, however delicate the half-tones may be, the line of the nose will be partly lost in equal light on the cheek behind it. only exception to this rule, that the face should be turned from the light, is in the case of a profile, or the profile showing a glimpse of the off eye when the nose comes clear against the background. For these reasons, that is, because it is necessary to choose which side of the face is to be represented, and because the face must be turned from the light, it is well to have a studio so constructed that the light can be obtained from the right or the left. It is also well to have it sufficiently wide to enable the operator to work diagonally, and thus get a modification of the shadows without the use of reflectors.

"As regards the position of the head, Burnet observes: 'Every one who takes the trouble to reflect must perceive that all faces contain two points of view, where the character is more or less developed—a profile, and what is termed a front view; and that the seat of a strong likeness lies sometimes in one greater than in the other. They

must also perceive that what is called a three-quarter view of the head gives the artist an opportunity of representing both.' A full face is seldom so agreeable in photography as one slightly turned away.

"A single figure should be complete in itself; it should not appear as though it had been cut out of a group, and it should be incapable of having another figure added to it without injury. The action of the figure should be that which is most common to the individual-such a position as shows it to the best advantage. No violent action should be allowed; no appearance of strain. Some photographers seem to think that grace consists of twists, and make spirals of their figures, especially ladies, by causing them to turn their heads over their shoulders, and try to look down their backs out of the corners of their eyes. The absurdity and affectation of this position is caused by exaggeration. A position approaching to it, but without the strain, is exceedingly graceful if the figure should be sufficiently easy and pliant to allow of this pose. The student will do well to observe attitudes assumed in every-day life, and adapt them to his art. He should store his mind with incidents suitable to his sitters, and he may then, perhaps, be able to give less occupation to the eternal book we see in the hands of photographers almost as often as a roll of paper is represented in the statues of statesmen.

"A vignette, when nothing more than the head and shoulders is seen, should never convey the impression that the sitter was lounging in a chair or leaning on a table; the reason being, that as the table or chair is not visible, the figure would appear out of shape and deformed. As a general rule, the shoulders should appear level, as though the subject were standing. A little variation between the direction of the head and shoulders will always give variety and animation. The lighting should be more delicate than that suitable for other portraits, and the background should always be light. If the white margin to the vignette be very slightly tinted in the light after printing, the delicate effect will be increased; but when this is attempted it is usually overdone, and then the effect becomes heavy, and worse than if the white paper had been left pure.

"The great art in the composition of a group is in so arranging the figures that they shall have some relation to each other, as well as the ordinary elements of pictorial construction. There should be some bond of union between those who compose the group; some incident should be represented in which they are mutually interested; or something must be imagined out of the picture to attract the attention of both, if only two are represented, or of many of them, if there is a number. Nothing has a more disagreeable effect than two figures in one picture which may be cut in two without much injury to either half. One point which should command the attention of the student is, that there should be variety in the heads, not only as regards profile, three-quarter, or full face, but in their position on the paper. Thus it is difficult (although possible) to obtain much pictorial effect out of two figures of exactly the same height standing together; in such a case variety must be got in the lines of the different figures by varying the direction of the bodies, by the arrangement of the arms and hands, and by the disposition of the accessories and background.

"Some artists prefer to make a group of three persons rather than two. I confess that the more figures I have to deal with in portrait photography, the more difficult I find my task. More than three or four figures should never be attempted in one negative, if it is necessary that every person should be a good portrait. I leave out of consideration here, large out-door groups taken on the hit-or-miss principle. We are speaking of composition, not of figures thrown together in a heap, with a head appearing here and there just as it gets the opportunity.

"There has been a notion prevalent that all figures must be taken to scale; thus, if a six-foot figure be represented in a carte de visite as three inches long (about the right proportion), a child three feet high must therefore be represented as half that height, or one inch and a half. If it be necessary to make elevations of (say) a family, to send to friends at a distance, to compare with others taken some time before, to demonstrate the fact that the children are growing, then this method must be followed;

but the photographer should never forget that it is his business to make pictures, and that a figure one and a half inches high will not fill a picture of the usual card size with anything like effect. I therefore advise that a little license should be taken in this particular, and that when a child is to be photographed, all consideration of how much of the picture would be filled by a grown person, with the camera at a certain distance, be forgotten, and that nothing but the child, the object then before the photographer, should engage his thoughts."

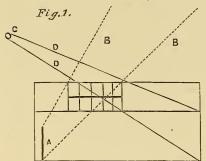
Light for the Studio.—"We will, if you please, pay a visit to a panoramic exhibition; not that we care to see the pictures, but I think we may study the system of 'lighting' to some advantage. Having taken our seats, we observe three things: First, that the picture before us is brilliantly illuminated; secondly, that the source of light is carefully concealed; and thirdly, that the audience are in almost utter darkness.

"We will now light, say, a dozen jets of gas in different parts of the room, and what is the result? The light, falling between the audience and the picture, has considerably marred the beauty of the latter; it looks comparatively tame and foggy. Turn out the offending lights and its brilliancy is instantly restored.

"Now, I cannot help thinking that unless we apply this principle of lighting to photographic studios, we do not give our lenses fair play. The conditions are the same: illuminate the sitter; remove all diffused light between him and the lens; and keep the camera in darkness. The question is, How can it be done? That question, with the aid of a few diagrams, I will endeavor to answer.

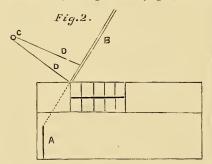
"Fig. 1 is a longitudinal section of an ordinary ridge-roof studio, 30 feet long, 9 feet high to the eaves, and 5 feet from level of eaves to ridge, making in all 14 feet. Six feet from the background over the head of the model is opaque. A is the model, 6 feet high, and the dotted lines BB, drawn from his head and feet, and cutting the roof at the extreme ends of the skylight, show the quantity of 'direct' light he is capable of receiving from that source; C is the sun,

who very unceremoniously floods the camera end of the studio with his rays, D D, tor-



menting the unfortunate operator almost beyond endurance. A quantity of light also descends vertically into the room. This and the sun constitute the dozen jets we saw lit between the audience and the picture, and which, in the next diagram, we will endeavor to 'put out.'

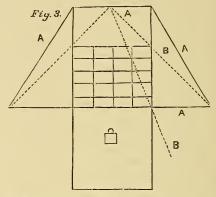
"Fig. 2 is similar to Fig. 1, with this exception; the dotted line B, from the head of the model, through the skylight, which



was only imaginary in Fig. 1, has become an opaque sunshade or shield, which effectually prevents the sun from entering the studio. As it is carried up to a point exactly above the extreme end of the skylight, it also cuts off the whole of the vertical rays which fell upon the floor, and being reflected in various directions, did their best to destroy the brilliancy of the picture; in fact, a number of the obnoxious 'jets' are extinguished without in any way interfering with the direct north light which still falls upon the model at the same angle as at first.

"If this method of lighting is good for the skylight it is also good for the sidelights (I mean windows in the sides of the studios). Shade these in the same manner, being careful not to interfere with the direct north light, and the lens, no longer having to fight its way through a fog to get at the model, will gratefully express its sense of relief by the increased brilliancy of the image projected upon the plate.

"Fig. 3 shows the shape of the roof-shield (A A A A), and also the angles of the side-shields, and their distance from the house.



These may commence at the south end of the studio, or at the junction of the dotted lines with the skylight. B B show the angle of direct side-light falling upon the sitter to be exactly the same as if the shields were not there.

"To carry this plan out in its integrity, a plot of ground 37 feet by 30 feet would be required. Where this is not available the top shield alone may be used.

"It is generally admitted that a high wall behind the sitter is advantageous, and why? Because it keeps the sun away. Upon this principle the accompanying design is based. The top shield may be looked upon as a wall bent over the studio. No upright wall could be built high enough to have the same effect, viz., to intercept the whole of the vertical rays. The side-shields may be considered as walls bent at an angle to intercept the direct rays from east and west, which, coming in from those points, illuminate not the model—they cannot reach him but by reflection-but the floor and sides of the studio, and may be looked upon as a blaze of light between the camera and the model, which the lens must pierce before it can reach the latter. I think the direct light which falls upon the sitter from the north will produce the most perfect pictures possible; but those who prefer a light from east and west as well, can glaze the whole of the shields, making them part of the studio, and shut out the sun with opaque blinds.

"I think it is a great mistake to permanently close the background end of the studio, because an opaque blind will always do that, and many good effects upon the background can be secured, especially if it be only held by a cord at the top passing through a block; this will allow it to be inclined at any angle."—R. A., in London Photographic News.

(To be continued.)

#### THE STEREOSCOPE AND ITS USES.

CIRCUMSTANCES which Enable us to See the Roundness of Objects.—During the discussion of the aids employed to produce a stereoscopic effect in pictures, the question may perhaps have arisen in the minds of some readers, whether it is indeed really

necessary to wait until such a peculiar illumina- $_A$  tion presents itself, or to produce it in the studio, and whether it would  $_B$  not be sufficient to simply reproduce things in

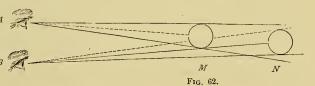
precisely those colors which they happen to show at the moment. As nature always makes the impression of bodiliness, it would appear that by a simple, truthful reproduction a strong relief must always be obtainable.

"This conception, which we meet with in some of the latest naturalistic school (Courbet, Victor Müller, and others), is based upon a very erroneous conclusion, to which attention was already drawn by Lionardo.

"It would be correct if the impression of bodiliness in nature were really produced only by color and by light and shade, that is to say, by the same means which are at the command of the artist. This is not the case, however, for in nature a number of other circumstances are at work which aid us in determining the distances of objects, or of their various parts; or, in other words, which assist us in perceiving the corporeal qualities of the things which we see.

"If, for instance, we desire to ascertain the relative position of several objects situated at various distances, we can do so by moving the head or the whole body, as these movements produce unequal apparent changes in the position of the objects, by which changes the judgment is aided. But we possess another exceedingly effective means for perceiving depth in space, even when the body is perfectly at rest, in the mutual activity of our two eyes, a means which is not available to the painter, since he is confined to a plane surface for the representation of his picture.

"It is a well-known fact that we look at all objects with our two eyes from two different points of view, and that we therefore really see two different pictures of the same object; or, in other words, that the two perspective views of the outer world which are projected upon the retinæ of the two eyes differ somewhat, so that each of these views has a different centre of vision.



"This is very clearly explained by Fig. 62, which is a copy of a drawing made by Lionardo da Vinci, for the purpose of illustrating the point under consideration. Two balls, M and N, are so placed upon a table that only the nearer ball, M, is visible to the left eye, A, of the observer, the more distant ball, N, being hidden by M. The right eye, B, however, sees not only the ball M, but also one-half of the more distant ball N.

"If we really make this arrangement, and then look at it with unprejudiced eyes, we shall simply see the two balls behind each other, only that part appearing to be hidden which is also invisible to the right eye. As soon, however, as we close the left and the right eye alternately, we shall find that the view is somewhat different for each.

"An analogous case can never be produced by a drawing upon a plane surface; and

Lionard) therefore observes, very correctly, that a painted object can never present the full corporeal appearance of a real object, even with the most rigid adherence to all the rules of perspective and of the treatment of color.

"The Stereoscope. - This statement by Lionardo, which, although quite brief in the original, is nevertheless very easily understood with the aid of the drawing accompanying it, remained unnoticed until the year 1838, when Wheatstone, following out the same train of ideas, discovered the Wheatstone reasoned very stereoscope. correctly as follows: If two perspective drawings of one and the same corporeal object are offered to the eyes, the two drawings corresponding to the views which the two eyes would in reality receive if looking at the object, and if care is taken that one eye sees only one drawing while the other sees only the other, the impression produced must be the same which would be produced by the body itself, that is to say, the object must appear to be round.

"His conjecture proved to be true, and the stereoscope is now to be found all over the world.

The apparatus which is employed in looking at stereoscopic pictures is not indeed absolutely necessary, and after some practice it is possible to obtain the stereoscopic effect without any apparatus whatever. For this purpose it is, however, necessary to give an unnatural position to the eyes, and the stereoscopes are therefore provided with prismatic lenses, which permit the eyes to retain their natural position, and at the same time serve as magnifying glasses.

"The difference which must exist between the two stereoscopic views belonging together will perhaps be best understood by the following illustration: Let us suppose a truncated, four-sided pyramid to be placed before us upon a table. Looking at this pyramid from above we shall see somewhat more of its left side with the left eye than with the right, and vice versa. The left eye will therefore see the view a of Fig. 63, while the right sees the view b. If we now look at a with the left eye, and b with the right in the same moment of time, we must also see the pyramid. To obtain this effect

we must introduce a partition (best of all a piece of dark-colored cardboard) between the two eyes, so that b shall be hidden per-

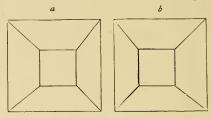


Fig. 63.

feetly from the left and a from the right eye, and we must then adjust our eyes as if we wished to look at some distant object, while holding the book in a vertical position, which is the best for the success of the experiment. Having done this, we shall instantly see the two pictures coincide, and the truncated pyramid will appear before our eyes with its basis turned away from us, and having the appearance of a model made of fine wire.

"Those who cannot make the experiment succeed with unaided eyes will of course have to use a stereoscope; but the figure will nevertheless serve to illustrate the difference which the two pictures must show."

—Dr. Von Bezold's Theory of Color.

#### "PATENTS AND THE USEFUL ARTS."

THE above title is given to his last brochure by H. Howson, Esq., who is none the less a successful author than attorney. Mr. Howson never writes without a purpose, and his aim is usually to bring about correction of the abuses which prevail in his very important profession. The little work before us contains one hundred and thirty pages of excellent matter, on early patents and inventors, patent law, etc., ending with a capital chapter on the abuse of the reissues of patents. From Chapter X we extract the following:

#### ABOUT INVENTORS AND THEIR TRIALS.

"The reader must not suppose that in the writer's opinion all inventors are saints, all patentees are inventors, or that the patent laws and the administration of these laws are all that they should be.

"Inventors belong to the great family of originators, and must be classed with authors, artists, and all whose work is the result of intellectual labor, exercised "in devising something new or not known before, or in modifying and combining things before made or known, so as to form a new whole."

"The inventors of new machinery or new processes, who think that they are set apart from the rest of mankind, as a special race, and such opinions are not uncommon, make a great mistake; the creative faculties are displayed in the ingenious arguments of the lawyer, the rhetoric of the orator, the diplomacy of the statesman, the operations of the surgeon, the tactics of the general; all are inventors in one sense of the word, although by common consent and usage the word "invention" to-day applies more especially to the creation of new devices, processes, or products, due to the direction of the human intellect in special channels to utilitarian purposes.

"Another great mistake is sometimes made by inventors in supposing that a verbal hint, a hasty suggestion, or an incomplete sketch of a passing idea, is invention; it is merely the shadow, and the public demand the substance; there must be reduction to practice, useful results, or there can be no invention.

"The rough, sketchy outline made by the artist may foreshadow the picture, but it is not what the public demands; he is no artist until the picture is ready for enjoyment by the public; the headings of the chapters of a novel may satisfy the author as to what the contents of the book are to be, but the public must have the book itself before the title of author can be conferred on the originator.

"Practical results of well-directed exercise of the intellect, results which can be enjoyed by the public, are what the law looks upon as invention.

"On the other hand, the inventor may carry his conceptions into effect by the aid of skilled labor without losing his title to the invention, carried into effect by that skill. No reasonable man attempts to detract from the merits of Rubens as an artist because his pupils filled in part of his pictures with skilful hands. No one doubts the originality of the novels of Dumas, because he employed

men of literary skill to put words in the mouths of the characters whom the author had created.

"It is the active, industrious inventor, not the visionary schemer, whom the law favors under our patent system, the man who carries his ideas into effect and makes them available to the public.

"There are circumstances, however, under which the law will take cognizance of the rough sketch and even verbal suggestions of an inventor, and that is when he is exercising reasonable industry in putting them into practice, and when there is a rival claimant, then the law will recognize the suggestions as evidence, not so much of the invention as of the conception, which the originator is exercising proper efforts to reduce to the character of an invention.

"There is one respectin which the inventor has the advantage of his brother originators, the author or the artist: he can, in the majority of cases, reduce his ideas to shape much more readily than the author can finish his book or the painter can complete his picture; the inventor can make, or have made, a drawing of his machine, and no matter how complex the latter may be, the drawing, if properly made, will be to the expert mechanic quite as intelligent as the machine itself.

"The true inventor, however, is subjected to many trials: first, his efforts are derided, and this has always been the case; the Marquis of Worcester was hooted at as a madman; Oliver Evans was denounced as a crazy-pated schemer, and it is the same today in a less degree. When the inventor's efforts approach success, there is the usual fault-finding, belittling, and denials of originality by plodders, who never had an original idea in their heads. Many of us have witnessed the beautiful play of the "Colleen Bawn." The fault-finding critics first sneered at it, but the intelligent people went to see it; when success was assured, the criticizing plodders got angry and declared that Boucicault stole the play from Griffin's novel of the Collegians, in which I never could find any material traces of the play. The same sort of critics, no doubt, lived in Shakspeare's time, and found fault with him because he did not invent the original of the character of Julius Cæsar.

"'The art of printing,' said Judge Grier, ' was stumbled over for four thousand years; and if a patent for it were now presented to our expert, he would show you at once that the whole art consisted in multiplying impressions from a combination of movable types. He would point you to the tracks of animals as original impressions from movable types, and show the invention of printing letters to be as old as Adam.'

"Few patents would stand the test of such ingenuity as this. Incredible as it may appear, yet it is nevertheless true, that on the trial of the originality of the Morse telegraph, it was gravely argued that two thieves in the penitentiary, who had corresponded by means of scratches and dots, on the prison wall, had preceded Morse in the invention of this most astonishing and useful art.

"As soon as an inventor succeeds he is met by the attacks of pirates; the very men who deride his efforts are the very first to appropriate his invention, just as manufacturers did with the first inventions of spinning machinery, and as the millers did with the devices of Oliver Evans.

"Originators other than inventors are not free from this evil; literary piracy prevails to-day to an enormous extent; there were three thieves and one author who laid claim to the little poem of "Beautiful Snow," and it is quite common for born plodders, without an original idea in their heads, to manufacture books with seissors and paste, and claim to be full-fledged authors; but the inventor has many more difficulties to surmount in establishing his right to the result of his intellectual labor than any other originator.

"After completing his invention he must seek a solicitor to prepare the proper papers for an application for a patent, and prosecute the latter before the Patent Office, and secure the patent, which is the title deed of his intellectual property.

"The future welfare of the inventor depends upon the manner in which these duties are performed, and yet, as I shall show hereafter, there are no professional duties which are more frequently performed clumsily and recklessly than these, in every part of the country.

"The inventor has obtained his patent, he feels secure, and he pursues the manufacture with pecuniary success; and now come the gadflys buzzing about the successful inventor, the copyists and adapters, who cannot exactly be classed with pirates, for they are actuated quite as much by a spirit of imitation as by avarice. This spirit prevails everywhere, and exhibits itself in all trades and professions, and in all phases of society.

"A few weeks after the national banks were established, the sign-painters were at work all over this city, and there was an eruption of first national barber shops, segar stores,

eating-houses, ovster stands, etc.

"A manufacturer made a popular stove and named it the 'Sunnyside;' both the stove and the name became popular, and the signpainters went to work again, and in a short time we had Sunnyside taverns, Sunnyside ice-cream saloons, Sunnyside corsets, Sunnyside shirts, etc. Then came the word Centennial, which threw all others into the shade. There was a general scramble for the word; it was applied to every imaginable thing; suit was brought against the Exhibition managers for the use of the word on medals, there was another suit about Centennial shirts, but all this is over; we have had enough of the Centennial, and the word has been abandoned everywhere. been dull times with the sign-painters recently; but I observed symptoms of another eruption the other day, in the shape of a big silver dollar painted over a store.

"Adapters and imprôvers, however, are not to be despised; their additions to or simplifications of the originator's invention are frequently of great importance, and tend to increase the value of the original invention; indeed, it is by a succession of improvements that perfection in machinery, apparatus, and process is approached.

"The pirates and adapters go to work, change some parts of the successful inventor's machine, add others, look for the weak points in the patent, and try to get a patent of their own, with more or less success, and suddenly the original patentee awakes to the fact that the patent is not the instrument he supposed it to be. He has not been told where the weak points of his patent are, or

how much the patent covers. This is one

of the worst evils resulting from the present practice of soliciting patents, of which I propose to take special notice further on.

"But if the patent is a good one, and fairly covers the ground, there is another danger. His rival may go to the patent office, hunt up the records, and discover and buy up some old, obsolete patent for an invention, some features of which have a resemblance to parts of our inventor's patent. The old patent is revamped by reissue, and the inventor finds that his own patent property is subordinate to this old, patched-up affair. Suits follow, and not unfrequently the inventor is ruined.

"In spite of all these difficulties there are thousands of well-to-do and prosperous inventors, but these are the men who have learned by experience, sometimes by a very bitter experience, how to surmount the difficulties. On every hand are to be found inventors who have made fortunes, and there are many more who have made moderate sums; but in all such cases it will be found that hard work and perseverance have had as much to do with these successful results as ingenuity. It is the new inventors who are victimized, and often succumb to the formidable difficulties which present themselves, and become ruined and disheartened. To such an extent has this prevailed, that patents are looked upon with more or less suspicion throughout the length and breadth of the land.

"Our law-makers, instead of favoring bills, which, if passed, must succeed in crippling the efforts of inventors, and proposing amendments which, if they become law, must arrest progress of the industrial arts, should direct their attention to the evils as they exist, and where they exist, and not ruin a system which, in spite of all its defects, has made us the most ingenious nation in the world. It is possible that I may be able to point out in the next chapter some of the weak points which our legislators can attack with the best results."

A VERY small quantity of carbolic acid will render tincture of iodine colorless, without destroying its therapeutic power.

#### LAMBERT'S LIGHTNING PROCESS.

A LBUMENIZING.—Albumenize your glass as usual.

Collodion.—The lightning negative collodion will keep indefinitely, and is sent ready for use. Carefully coat the albumenized plate, allowing the film to become well set before immersion in the bath. Keep the plate in motion in the bath, and remove it as soon as the greasy lines have disappeared. The dark-room must be absolutely free from all actinic light. To have the maximum of rapidity the plate must be exposed as soon after removal from the bath as possible. Filter and thin the collodion as usual, if necessary.

Bath.—Usually the first bath sent is of proper strength, and ready for immediate use; afterwards it will be sent in concentrated solution. Test it, and dilute it with distilled water or ice water, so as to make forty grains to the ounce, keeping a little of the concentrated solution to strengthen the bath, when necessary, to keep it at forty grains to the ounce. After the bath has been in use for some time it will naturally deteriorate, from the absorption of alcohol and ether and an excess of iodides. It should then be rendered alkaline with liquid ammonia or weak cyanide of potassium, adding distilled water equal to one-half the quantity of the solution, and evaporate in the usual way to its original quantity; then expose to the sun until all precipitation ceases, and when cold filter twice through clean filters. See that the bath is in strength forty grains to the ounce, or make it so by adding either distilled water or some of the reserved concentrated silver solution; also add sufficient C. P. nitric acid to show the slightest trace of acidity on blue litmus paper after one minute's immersion; for the bath works best when as nearly neutral as possible.

Should the plate be fogged, try to remove it by rubbing lightly with the fingers; if it comes off it is a proof that the bath is too acid, so treat it with liquid ammonia or weak cyanide of potassium. If the fog is in the body, and cannot be rubbed off, it is evident that the bath is too alkaline; then treat it with a little C. P. nitric acid.

Developer.—This developer will keep in-

definitely, and must be mixed with its own bulk of distilled water before using. The development must be continued as long as possible, being unusually slow; it will take up again any precipitation without injury to the negative. Use just enough developer to cover your plate. Some photographers catch their developer in a tray, and after filtering it use it over again without any bad results. Should the subject have required an unusually short exposure, allow the plate to remain in the holder a few minutes after exposure before development. If the picture flash out suddenly in the development, throw off the excess of developer, and rock the plate quickly until the proper density is obtained. Should the picture develop with too much hardness, reduce the strength of the developer.

Fixing.—Fix in hyposulphite of soda, as usual; but if the negative looks too hard, a dash of cyanide of potassium will soften it, but it must be used carefully, and not too long.

Continuator.—The continuator is rarely needed, but if so, add to it an equal quantity of water, and a few drops of a ten per cent. nitrate of silver solution at the moment of using. It is only used after development, to bring out the details of an underexposed negative when the developer fails to do so.

Reintensifier.—Very seldom necessary, being only used to obtain greater intensity, when it takes the place of the continuator. Dilute it with five times the quantity of water, and add, at the time of using, a few drops of a weak silver solution. It should be used carefully, as it gives a very strong color.

N. B.—Be careful to have the glass perfectly clean, as foreign organic matter causes fog and stops detail in development.

[We give the above according to promise. It is genuine, as supplied for \$20, by T. S. Lambert.—Ed. P. P.]

Large Doses of Iodide of Potassium.—In the course of the recent meeting of the American Dermatological Association, it was stated that Dr. A. Brooks, of Chicago, had given as much as one thousand grains per diem of iodide of potassium.

#### GERMAN CORRESPONDENCE.

Emulsion—Solubility of Nitrate of Silver in Alcohol and Collodion—Picture of the Sun—Blisters in Albumen Paper—Hardened Glass applied in Photography—Capt. Abney's Researches.

THE watchword of photographic success is emulsion, which has reached such perfection that it is not at all surprising to see Mr. Swan, of Newcastle, advertise plates which surpass the sensitiveness of wet plates three times. A striking invention in photography is necessary. Acoustics has recently disputed the standpoint of optics. The telephone carries the word miles off, the phonographer takes it down, and fixes thus an acoustic picture, produced in a mechanical manner by sound-waves, similar to photography, which is based on vibrations of light. Without looking enviously upon acoustics, I yearn for the time in which I can send you my humble correspondence as a phonographic plate; thus you will overcome the reading of my illegible handwriting. Emulsion has lately had more success in Germany, although England is decidedly the Eldorado of the process.

In regard to the practice of the same, Dr. Elder, of Vienna, the excellent photographic chemist, has published the following results about the solubility of nitrate of silver in alcohol.

100 parts of alcohol of 95 per cent. at 66° Fahr. will dissolve 3.8 parts of nitrate of silver; 80 per cent., 10.3 parts; 70 per cent., 22.1 parts; 60 per cent., 30.5 parts; 50 per cent., 35.78 parts; 40 per cent., 56.4 parts; 30 per cent., 73.7; 20 per cent., 107 parts; 10 per cent., 158 parts. In pure ether, and in ether saturated with water, the nitrate of silver is rarely soluble. An addition of alcohol augments greatly its capacity; 100 parts, for instance, of a mixture of alcohol and ether, in a proportion of one to one, will dissolve at 66° Fahr. 1.6 parts of nitrate of silver; mixed in a proportion of two to one, and equal temperature, it will dissolve 2.3 parts. Dr. Elder does not mention the influence of collodion cotton, which is evidently proved by the various experiments with dry plates. A collodion prepared with common cotton for wet plates, will easily

take one per cent. of nitrate; whilst Hopkins's dry-plate cotton always precipitates a part of the silver added in a hot alcoholic solution.

Since it is customary in preparing dryplate emulsions to boil the alcohol with the silver, it is also interesting to know the solubility of nitrate of silver in hot alcohol. According to Dr. Elder, 100 parts of alcohol of 95 per cent. at 158° Fahr., will take 18.3 parts of nitrate; 80 per cent., 42 parts; 60 per cent., 89 parts. It results that about six parts of hot alcohol are wanted in order to dissolve one part of nitrate of silver.

I received, not long ago, a new picture of the sun, by the astronomer Jansen, of Mendon. It is about twelve inches in diameter, and is distinguished by an immense mass of details. The surface is entirely covered with granulations of different effects, and forms very near that of a circle. It is very likely that contractions have taken place in the photosphere of the sun, which may have been the result of strong atmospherical streamings. The brilliancy of the grains is not constant. The most prominent one is so light that the sun, if it were covered over the whole surface with the same kind, would be from ten to twenty times lighter than it is now. All pictures taken until now in Mendon, have shown but very few solar spots. We observe now the minimum of spots. As soon as they commence to appear again, and photography reproduces them with a perfection which Jansen knows how to develop, we may expect some very interesting results.

Photographers in general care but very little about the "blisters" on the surface of the sun, as all their attention is attracted by blisters in albumen paper. Americans suffer more than Europeans. On the occasion of my visit to Philadelphia during the Centennial, I saw that you use a chloride of sodium bath before fixing. This has been frequently tried here but without any success. Alcohol, in which the pictures are dipped before toning, has been recommended as an absolutely reliable remedy; however, the use of alcohol might be expensive. Another remedy has been recommended, a thin fixing bath, one to twenty or one to thirty; but there exists always a certain distrust of such baths. Herr Warnerke, who has tried to find an explanation of the formation of blisters, attributes it to the little adhesion of the albumen film to the paper, and recommends, therefore, dampening the paper on the back and let it dry again. He has tried this simple means with the best of success, inasmuch as there appeared no blisters; but the water on which he let the paper swim attracted such a quantity of silver salt from the paper that it copied but very slowly. Warnerke overcame this difficulty entirely by adding four per cent. of salt to the water. I should say this means is very simple, as there is only one observation to be made, which is, to let the paper swim just so long in this salt solution as will soften the albumen. If the remedy is reliable, it would be recommendable to the manufacturers of albumen paper to use it, in order to put, finally, an albumen paper in the maket without fault.

Hartglas (hardened glass) has often been tried in photography. It is much more durable than common glass, and consequently less subject to accidents. Its use, however, has always been limited by the fact that it cannot be cut, as in doing so it will always break to pieces. Mr. Simens, of Dresden, overcame this difficulty by manufacturing hartglas to order in any size. I was much astonished when I saw, the other day, that a negative on hartglas, which Simens sent me, could be thrown on the floor without any danger of breaking. At the same time it had a considerable flexibility. I saw, too, that a lead ball, dropped on a hartglas plate from a height of four metres (about thirteen feet), got smashed, without injuring the plate in the least. This experiment proves that hartglas must be quite a convenient article for skylights, which are so often damaged by hail.

Simens recently succeeded in grinding this kind of glass for photographic purposes. The most desirable is the hartglas for the Lichtdrucker. The amount of plates which he has to sacrifice by breaking is quite considerable. Roemmler and Jones, of Dresden, successfully tried hartglas, and found that it will bear a pressure under the printing-roller which would break every other plate-glass plate. I suppose also that this kind of glass, on account of its hard surface,

is less likely to be injured by chemical reactions than common glass, and that it, on this account, may offer some advantages for the negative process.

The last number of our English correspondence contained an interesting article by my very much-esteemed college fellow, Captain Abney, about spectrum photography. The indefatigable investigator has succeeded in obtaining all details about solar lines in the red and yellow parts of the spectrum, and to amplify greatly our knowledge about this subject. He speaks in his article also of my theory about the effect of colors on bromine plates, and states that only those bromine plates which are supersaturated with nitrate of silver will be influenced by the addition of a dye, and that the same color is without any effect on plates supersaturated with bromide. This observation, which I published two years ago, is all right. Abney explains the phenomenon of the effect of dyes in the presence of nitrate of silver, as follows: The dye forms with the nitrate an organic, sensitive salt, which will be reduced by light. This reduced salt acts then as a nucleus for the reduction of the bromide of silver under development. Abney has also shown that a film which never has been exposed to light, will show an impression if overexposed to a previously exposed plate. This opinion would be right if the effect of the colors only were noticed in presence of nitrate of silver, but this is not so. A bromide plate supersaturated with bromide, and sensitized with tannin or morphine, will show exactly the same effects; that is to say, the dyes will render the plate more sensitive for those rays which they absorb. Since it is scarcely admissible to suppose that tannin or morphine form a sensitive composition liable to be reduced by the action of light, I regret to say that the explanation of my college fellow will not stand the test. I still study closely this operation by experiments, and very soon will be enabled to communicate to you my new results already obtained.

Truly yours, H. Vogel.

Parties who want photographic books can buy of the publisher direct, at trade discount.

#### SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILA-DELPHIA.—A stated meeting of this Society was held on Thursday evening, May 16th, 1878, the President, Mr. Ellerslie Wallace, Jr., in the chair.

The minutes of the previous meeting were read and approved.

On motion, Monday, May 20th, was fixed as the latest date that names for the excursion would be received.

Mr. Carbutt exhibited an improved pneumatic holder, manufactured by Mr. Bierstadt.

Mr. Bell called attention to the value of sugar in the alkaline developer. He used it in the proportion of one ounce of sugar to ten ounces of saturated solution of carbonate of ammonia, and claimed that it gave better control of the development, together with a good printing color in the resulting negative.

Mr. McCollin exhibited a number of prints from bromo-iodide emulsion negatives; also a collection of excellent photo-michrographs made by George A. Piersol, M.D.

Mr. Bell exhibited a successful negative made under the skylight with his bromoiodide emulsion. The exposure was the same as for a wet plate.

Mr. Browne gave an interesting account of a call upon Mr. H. J. Newton, of New York, and exhibited several beautiful examples of portrait work made by that gentleman on bromide emulsion. The exposure had been from five to twelve seconds. The results were much admired, the general opinion being that they far excelled in quality anything of the kind ever shown before the Society.

After an informal conversation, the meeting was, on motion, adjourned.

D. Anson Partridge, Recording Secretary.

#### OUR PICTURE.

A<sup>S</sup> will be seen, the picture which embellishes our current number is from negatives made by Mr. John A. Todd, Sacramento, California, and of the competiting prize set, and one of the now popular Promenade size.

Mr. Todd's remarks, which appeared in our April issue, should have accompanied this picture, as they are very pertinent, and should be referred to again in connection with it. It is an example of good, fair work, and possesses much merit, and yet it is of the style, as Mr. Todd expresses it, which many photographers have to make in order to "live."

We fully appreciate what Mr. Todd has said, and have had many a correspondent write us in very much the same way as he has done, in response to our urgent demand upon them for more effort after the artistic in their work. But all can do as our friends Loescher & Petsch, of Berlin, told us it was their plan to do, namely, to make each year at least two pictures which should display all the art knowledge they had at the time, and which should be very superior to their ordinary work. They found that such practice was good for them, and improved and helped them in a number of ways. Moreover, they always sold many copies, which more than paid them for their extra pains. Try it.

We thank Mr. Todd for what he has said and done for, and in behalf of, the fraternity, and hope he will allow us to hear from him often. The pictures were made on the Dresden paper imported by Mr. G. Gennert, 38 Maiden Lane, N. Y.

#### WISE WORDS FROM THE WORKERS.

A SEASONABLE DODGE.

HAVING curtained my skylight for the summer campaign by a new method that works so nicely, I must recommend it to all who are troubled with direct sunlight in the operating-room, which all operators know to be so annoying and disastrous to "fine effects" at certain hours of the day.

First, remove your regular curtains (they probably need washing or renewing by this time, anyhow); paste white tissue-paper along each sash of the skylight, and let it hang downward; use the regular size sheets, pasting them along one edge only. This shuts out direct sunlight effectually, and gives a very strong diffused light, pleasant both to

the sitter and to the temper of the operator. In cloudy weather very little light is obstructed, as it passes straight downward between the rows of hanging tissue-paper. Make a light frame of  $2 \times 4$  scantling, a little larger than the skylight, and suspend it about a foot below the tissue-paper, and hang your muslin or other curtains to this frame-work in the same way they were originally attached to the skylight.

By using these curtains in connection with the tissue-paper, you have perfect control of the light in all kinds of weather. You will be surprised at the fresh, cool, shady appearance of your operating-room, and also at the cheapness of the whole affair. When the dark fall days approach, the tissue-paper can be easily removed, but let your regular curtains remain on the movable framework, the lower part of which should rest on two blocks nailed to the wall at the lower part of the skylight. The upper part of the frame can be hoisted at any desired height by two small ropes attached to the corners, running through large screw-eyes in the casing of the highest part of the skylight, and can be lowered in five minutes whenever you wish to repair or remove curtains for washing, which, if done occasionally, adds very much to the appearance, and shortens the time of exposure. FRANK ROBBINS.

#### How to Do.

It is often of as much interest and profit to be able to tell how not to do a thing, as it is to be able to give exact directions as to any particular modus operandi, and having just had a most unpleasant experience with tissue-paper, I wish to say that, used on skylights, it is destructive to soft, delicate work. I had to find this out by experience, for I discovered upon taking off the paper entirely, and using simple means to guard the sitter from reflections of direct sunlight, I could produce satisfactory negatives, where before had been a mortifying hardness and lack of softness and delicacy. It may be, therefore, that some who are using this means of keeping the sun out, are blaming chemicals for a fault they are not responsible for. I intend trying an experiment in the use of tracingpaper curtains for my light, which I believe will conquer the direct sunlight difficulty.

I understand that some photographers are already using it; if so I wish they would report. Another thing in relation to skylights is, that for quick work, brilliant lighting, and indeed general use, a light not over seven feet from the floor at lowest edge, and ten or twelve at the top, seems to answer exceedingly well, and I am very sure that the success or failure of the "lightning process" is largely due to height of light and quality of lens.

My formulæ I hardly know how to give, as I mix my chemicals after a fashion of my own, varying them as circumstances seem to demand, in proportions that are unexplainable. But I have the same basis as all workers of the wet process, a bath of from thirty-five to forty grains in strength, so mixed with new stock solution as not to get too old, and yet not be too newly iodized; a collodion with two grains of iodides of cadmium and potassium; bromide cadmium, four grains; cotton, four to seven grains to the ounce of alcohol and ether; I keep a quantity of this on hand, of various ages, and mix as seems advantageous. I redevelop as rarely as possible, but when I do I use pyro. Silver my paper in plain bath, fiftyfive to sixty grains strong; a little alum in the filter; do not allow this to get too old, simply to save a little silver.

I make my own chloride of gold, and mix toning bath with acetate of soda; wash prints by hand; fix slowly.

If any one who does not use it, will try Mr. Hesler's way of waxing prints, they will not be apt to change, viz., saturate a piece of cotton flannel with fine, white wax, rub prints down thoroughly, and then burnish with a roller not too hot.

By using clean wax, clean cloth, and clean burnisher, a polish can be got that cannot be improved upon, and many times easier to use than soap and alcohol.

I know it is not considered exactly the correct thing to bring the name of any lens maker into your columns, but so much does depend upon them that I do think a little more prominence might be given to the matter and nobody hurt thereby. For all my work, copying excepted, I use a 3 B Dallmeyer, and where to find its equal I would not know.

The matter of the proper use of lenses ought to be made much of, and the making of all sizes and styles of pictures would be much benefited thereby. A proper understanding of what any particular lens can be used for, and the making of every class of work with one lens, would be relegated to the past. If any of your readers want an illustrated sermon on the proper use of a lens, let him get one of Mr. Rocher's superb imperial pictures, and be enlightened.

May I be pardoned a warning and a parting word to the craft while on this subject, it being another fragment from my own experience. Be content to make the class of work for which you are equipped. If you have not proper room and instruments for large work, do not attempt it; do not let your avarice or ambition get the better of your good sense. Hastily yours,

J. E. BEEBE.

#### MY PLAN.

My plan is old, but good; at least I have found it so. The bath I use about forty grains strong. My collodion, the much republished formula of equal parts alcohol and ether, five grains iodide of ammonium, two and a half grains bromide of potassium, and five grains cotton.

I think success in making clean negatives lies more in taking care of the chemicals than in the formula. I believe in keeping the silver bath acid, for I think more dirty work can be traced to a lack of acid in the negative bath than to any other one cause; and this is occasioned, in a measure, by the instructions we received years gone by, that nitric acid would reduce the intensity of the negative, and that fear still clings to many. I do not mean by this that an unlimited quantity would not make any difference, but in preparing a bath it should be tried, and acid added until it works clean and smooth. Then the care of it comes in. When a bath of this kind becomes dirty, the natural remedy is to filter it, and if it becomes charged with alcohol and iodide, it should first be reduced with water, then filtered to get the surplus iodide out, and then boiled to its proper strength, and sufficient new solution added to make proper quantity. It should then be placed in the sun until all precipitation has ceased; filtered, and it is ready for use. This is practical experience, and (if it does seem like egotism) I will say that I have never seen, in any gallery, cleaner negatives than we are making. To do this you must have two silver baths, large ones, and when one is out of order the other should be ready to be put in use.

I have been using emulsion plates considerably for stereo work, and find them very satisfactory, having made as high as thirty-eight exposures (when on a trip on the Mine Hill Railroad, having an engine and car at our service) in one day, and from no fault of the emulsion did I lose a plate. I am sure I could not have got as many, and as good, negatives by the wet process. Besides, it is so convenient for going a great distance; no dirt or slop until you get home, when the plates can be developed at leisure.

I made a trip on the "Gem" engine in company with Frank Taylor, Esq., of the N. Y. Graphic, and James W. Nagle, of the Pottsville Miners' Journal, on the Philadelphia and Reading Railroad, and made twenty-two negatives in two days, and did not lose one plate.

Business in the coal regions has been exceedingly dull, but by energy and perseverance I have been doing at least my share of work, and while we have nothing to brag of we do not complain, as I feel sure many others are in the same boat; besides, we should not expect to make money at our business when so many necessary industries are lying idle.

If what I have written is worthy of publication, and will benefit any, you and they are welcome; if not, consign it to the waste basket, and you will not offend

Yours truly,

GEORGE M. BRETZ.

#### A HINT.

I was out viewing quite recently, and accidentally broke my glass bath-holder. As it was necessary for me to be ready for work in an hour or two, and a bath-holder could not be secured inside of twelve hours, I borrowed the largest steak plate I could find, and levelling it in my dark-closet, I nearly filled it with my negative bath, and proceeded to work. I sensitized about two

dozen 8 x 10 plates in it with a greater amount of success than I hoped for, and secured some fine results.

GARVEY DONALDSON.

#### PRESERVATION.

A METHOD adopted in my gallery for keeping silver baths for negatives at a summer temperature in this cold climate during the winter, may be of service to photographers similarly situated.

A large box is made, with a soap-stone bottom, into which the bath-holders are placed, being allowed to stand at the proper angle by wooden pieces nailed on inside, and the top of the baths protruding about an inch above the top cover of box, and fitting closely to keep the heat inclosed, and consequently, even over the whole surface of the bath. Each bottle is protected from light and dust by covers tipping back on hinges, and a gas jet under the soap-stone bottom of the box makes the thing complete.

Another labor-saving arrangement is to keep silver bath for paper in silvering dish, simply covering with sufficient care to keep out dust, etc. The evaporation in the flat dish will nearly keep up strength of solution, and saves much waste incurred in pouring back into bottle. W. G. C. KIMBALL.

#### IRON SOLUTION.

PERHAPS the best thing I have to offer is the way I prepare my iron solution and developer, which is as follows:

Protosulph. of Iron, 16 ounces.

Iron and Ammonia, 8 "
Sulphate of Copper, 1 oz., or 480 grs. (Troy).

Place each of the above salts in a separate bottle; add just enough pure water to make saturated solutions (if anything, allow just a little free salt), then allow to settle for a few days; then decant all the solutions into one bottle and mix. The three make your stock solution always ready and convenient for mixing just as much developer as you may want for the day's work, or the time being, or just to suit the kind of work in hand. I use, for white drapery, one fluid ounce stock solution, six drachms acetic acid No. 8, and ten fluid ounces water. For general use, one ounce stock, one ounce acetic acid to eight ounces pure water, which makes about

a twenty-grain developer. With a bottle, stock solution, acetic acid, and pure water at hand, you have perfect control of your developer, as to strength, etc., and oftentimes secure a negative that, under ordinary circumstances, would be lost.

E. S. WERTZ.

#### CHEMICAL DEPARTMENT.

THE chemical department has arrived at such a degree of perfection (although now and then some fellow tries to palm off some "lightning process"), that I can hardly give you anything new. The best "dodge" in the business is care, promptness, and politeness. But to the point; my formulæ for negatives. The bath, silver and water; forty to forty-five grains silver to ounce of water. Saturate with iodide of potassium; then add a little acid, nitric, C. P. As long as it works, let it alone; when overcharged with alcohol and ether from use, evaporate onehalf. Should it need purifying, neutralize with cyanide of silver (this is put in before evaporating); then fill up to proper quantity, add silver, quantum sufficit. I never take out the iodide. This I once explained in a paper read before the Photographic Society in Philadelphia. For collodion, best chemicals, such as are made by Magee Brothers. Ether and alcohol equal parts. For thirtyfive ounces, use

This I use in winter; for summer it is not limpid enough, cadmium making it tend to glumness.

I have another collodion.

Alcohol,				12	oun	es.
Ether,				8		
Iodide of	Am	moni	um,	5	grs.	per oz
Iodide of	Cad	lmiur	n, .	1	gr.	"
Bromide	of C	admi	um.	2	ors.	66

Take two parts of the first and one part of the last. This makes a combination that will work in the hottest of the season. The last collodion is fine for copies. Developer is twenty grains; solution of iron in water, acetic acid, little. This plan I find to work quickly, always ready, never have to "try my things in the morning to

see if they will work." A good simple process is the best. Then give all attention to the light and lines. Our people are becoming too well educated in art, and if these matters are neglected, the boy soon goes under. For printing, I have always used Morgan's Extra paper. It is always good and results the same. S. M. Robinson.

#### TO SOLAR PRINTERS.

When printing from a coarse, hard negative, one that is badly varnished perhaps, and a good clean and soft print is desirable, or a print from any solar negative is wanted that will need no spotting, proceed as follows: Print about half done, then lay over the unfinished print a piece of ground-glass same size of the print, and always with the ground side towards the condenser, and continue printing. This will have a softening effect, without affecting the sharpness; ordinary blemishes disappear as if by magic, and a good print is made possible by this means from negatives that would ordinarily yield bad results. Try it.

C. A. ZIMMERMAN.

#### My "Views."

My general manner of work is detailed in the article accompanying "Views," in the Photographer of last year. I find the copper negative box as described there very convenient, as I can develop thirty 5x8 plates, flow with preservative, and leave the clearing process until evening, or the next day even. I have a small piece of heavy black cloth tacked on the front of each camera, sufficient to cover the opening; a small strip of wood fastened across the bottom, holds it down in any light wind, and also affords a good "hold," and when lifted is an assurance that the opening is clear; something which one cannot always be certain of if they are compelled to gather up two or three folds and stray corners of a focussing-cloth, with their attention on something else, a horse or dog, for instance. It is specially convenient in making quick exposures in stereoscopic work, as both sides can be raised evenly.

Viewers should always go in pairs; it is expecting considerable to ask one person to arrange the tripod, prepare a plate, rise to make the exposure, scoot back and plunge from the bright sunlight, if it chances to be bright, into the twilight of a dark-box, which seems for a time at least to be pitch-dark, then out to rush perspiringly to the camera again, if it chances to be warm. I say it is asking considerable to expect good results to follow such a hot and cold game, and if the work is good, the maker should have extra credit.

I have been accompanied in all my excursions for the past three or four years by Mr. Charles Oblenes, he having entire charge of the developing-box, while I make exposures, with a boy or man to run between us; in that way we can keep cool under ordinary circumstances. We always keep a stock of glass on hand, albumenized, and done up in packages of twelve each, covered with thick, heavy paper, pasted down, to exclude all dust; to enable us readily to determine which side is coated with albumen, a small bit of "opaque" is touched on the back in one corner. To touch out a bad sky, I use "opaque" on front of negative, softening out at the horizon with a badger blender. Sometimes I have saved a valuable negative by scratching out carefully the branches and leaves of a tree which the wind had moved during exposure.

I was surprised recently to know that in some large galleries pictures were pasted dry, licked, and rubbed out smooth under a piece of paper; but until something better is suggested, we shall continue to do as follows: Wet the views, pile up one on top of the other a half inch or so thick, press out the water, paste (starch), pick up with a dull needle set in a handle, lay on mount, and rub down with a bit of chamois skin dampened so as to slip easily over the surface of the paper.

To prevent curling in large cards I place them in boxes somewhat narrower than they are, bending them backward, and allowing them to remain until dry; if very thin, I wet the cards as well as the photographs, and dry between sheets of paper.

To strengthen, I take the negative when dry (after clearing), immerse in silver bath, and develop with iron developer, same kind as used first, reduced about one-half; this may be done in bright light; if still weak I blacken with bichromate of mercury. A

second immersion and application of iron is apt to cause fog.

S. R. Stoddard.

#### CARE IN FUSING.

In placing the following before your readers, I am confident that many of them have learned to appreciate the advantages of boiling down the negative bath, and fusing the silver. As regards the total destruction of the organic matter and free salts from the collodion, the driving off of all alcohol, ether, and acid, this is certainly the most reliable mode of rectification. Now, when about to proceed in this direction, we find that numerous articles have been written on the subject, and the general mode of accomplishing the best results are given, such as diluting the bath by adding the same to about one-fourth its quantity of water, thereby causing the precipitation of the iodide, which is to be filtered out; then boiling down to dryness, and fusing the mass until it again liquifies, when it should be set aside to cool gradually. going is at once simple, and any one may thereby rid himself of the troubles attendant with a disordered bath; but I find that one important point has been omitted, and I would therefore call attention to the following.

Having made up two large baths about a year ago, the one, after prolonged use and frequent additions of nitric acid, as a remedy in case of fog from organic matter, etc., I was at last compelled to put under treatment for fusing, from overiodization. fully aware that the mass of fused silver is generally of a dark brown or black color, and during the operation of dissolving the mass and making up the bath anew, all this precipitated matter is filtered out. was also the case in my proceedings; a sufficient amount of water was added, then filtered and set out in the sun, where it remained three months, when it was brought in for service, and upon trial I found plate after plate literally covered with fog, and cause unknown, except indications of overiodizing. Finally, under the impression that organic matter might have gained access to the bath through some cause to me unknown, I again diluted the quantity, and found it to be overiodized. Now, after the

act of again fusing, the mass was this time perfectly white, and the solution remained perfectly clear, until I had added about twenty ounces of water, when it immediately turned milky and continued gaining in intensity, so that by the time the balance, one hundred and forty ounces of water, had been added, it had attained quite a creamy appearance, thus establishing the fact that the bath was greatly overiodized, said iodide having been held in suspense in the solution by the presence of the great quantity of acid, which, upon evaporation, left the excess of iodide undissolved, and caused the heavy fog and pin-holes. I now again added the bath for the third time, to onequarter its bulk of water, filtered, and boiled down to original strength, and without a day's sunning, all worked charmingly, and no trouble has been experienced since.

JOHN H. HENNING.

#### MY COLLODION.

I GIVE herewith a method of preparing collodion, which I believe to be fully as sensitive as any collodions of the so-called lightning processes, and possessing indefinite keeping qualities. I disclaim any share of originality for the process or formula, but do not know to whom to give credit, but suppose it to be of German origin.

#### Formula.

Alcohol,					8	ounces.
Ether,					8	"
Iodide of	f Po	tassiu	m,		32	grains.
Iodide of	f Ca	dmiur	n, .		40	"
Bromide	of C	admi	um,		28	66
Soluble (	Cotto	n,.		about	80	66

Now please follow strictly the following method in compounding: The bottles used should be carefully cleaned. Weigh out the salts in the order given in the formula, then proceed as follows: In a clean glass mortar grind the thirty-two grains of iodide of potassium to fine powder; then add the twenty-eight grains of bromide of cadmium, and continue the grinding until the salts become fluid; then add the forty grains of iodide of cadmium, and grind to a paste. Now measure out eight ounces of Atwood's patent alcohol, and pour off five ounces into the bottle, and add a small portion of the re-

maining three ounces to the salts in the mortar, and grind away until the alcohol is quite saturated; then allow the mortar to rest until all the undissolved salts have settled to the bottom, when the five ounces of alcohol in the bottle should be set rapidly whirling, and the clear portion in the mortar decanted into the bottle, being careful to lose none of the undissolved salts; then add another portion of the reserve three ounces of alcohol to the mortar and proceed as before, repeating the operation until all the salts have been dissolved and added to the alcohol in the bottle, rinsing the mortar with the last portion of the reserved three ounces of alcohol. Now add the eight ounces of ether, ounce by ounce at a time, to the solution in the bottle, being always careful to set the fluid in the bottle whirling rapidly while the addition of ether is being made, and during the intervals of at least a minute between each addition of an ounce of ether at a time, until the whole eight additions have been made; then the solution may be allowed to stand a few hours, when it should be closely filtered through prepared cotton into another perfectly clean bottle, when the cotton may be added in proportions of about five grains of the cotton to the ounce of excited solution. Any favorite brand of soluble cotton may be used. I have had the most uniform success with Anthony's Snowy Cotton, which I also find works splendidly mixed in about equal proportions with Hance's Silver Spray Cotton. This collodion may be filtered and used at once, or, what is better, be allowed to stand until all insoluble particles have subsided, and then decant as wanted. I do not recollect ever seeing a sample of this collodion spoil by age; indeed, I have not been able to keep it until it passed its prime; with me it improves by age. But be that as it may, one great merit of the formula is that, omitting the cotton, any quantity may be prepared at a time, and kept for years even; so that by preparing a large stock at once all further trouble may be avoided, except to add the cotton to measured portions as desired F. M. SPENCER. for use.

#### MY DEVELOPER.

When you call on me for any new "wrin-

kles" or "dodges," I am afraid, as the result becomes apparent, you will be the one to do the wrinkling, by a gathering frown, from which I shall be under the necessity of dodging for not giving you something more palatable to the photographic taste, which, as we all know, in the *live* specimen of the genus photographer is constantly calling for "more." As a general thing, I am afraid it is not the substantials so much as the *ragouts* that are demanded by the epicurean taste of the present, therefore, this dish may, to many, lack spice.

There is one thing which, though old, yet is practiced by so few that it seems well to again call attention to it, viz., the use of "copper sulphate" in the developer.

Edward's formula for the use of this salt is probably the most generally known, but even that is little used. The majority of operators seem to delight in making a saturated solution of either "plain iron," so called, or "iron and ammonia," letting it stand, and gather its seum of oxidization on the surface, allowing it to adhere to the jar or bottle containing it, both inwardly and outwardly till it is, or should be, a plague spot in the dark-room. This, diluted by guesswork, often forms the staple developer to be used indiscriminately on any poor "victim" that "happens in."

Now, aside from the disadvantages of dirt, uncertainty as to its condition, strength, etc., there cannot be so good results obtained in the matter of delicacy of development and cleanliness of action, as the "copper developer" exhibits. Six ounces of "plain iron," one to one and a half ounces of copper sulphate previously ground fine (unless you use a dissolving jar), with eighty ounces of water, after standing for an hour or two, and then being filtered, will give you a developer of minimum strength, which, in my practice, has given the best of results, though in some ways, contrary to preconceived ideas on the use of copper.

I am obliged often to make such things as glassware on the same plate with articles of as dead white surface as Parian marble, and only by use of the above developer can I do it successfully.

Two such diametrically opposite characteristics as presented by the opacity of the

whites, and the delicate half-lights necessary to bring out the full shape of the glass, are seldom required on the same negative, and if it stands such a test, how much more likely to in the lesser contrasts of portraiture. Besides the above, and as important in the dark-room as a good negative is in the printing-room, the cleanliness of this developer and its good keeping qualities ought to recommend it more to use.

It takes less acid, owing to the copper itself being, in a measure, a restrainer, and by only adding acid (say one ounce) to a pound at a time, or just as you wish to use it, there is no trouble in keeping a stock solution clear and clean for months.

D.

#### PRACTICAL HINTS.

I HAD burdened your pages during the past year with so much of non-practical disquisition, that I thought the familiar advice to those who talk too much, "give us a rest," would be the general sentiment of your readers, and so I gave it to them and to myself. But your request to write about formula found me in a favorable mood, as I am teaching a young man from Cuba, and he wants my especial formula written out for him; therefore, with slight changes of phraseology, will answer your request.

There is none of it entirely new and original, but my mode of working differs somewhat from the regular routine, and mostly in the direction of ease and convenience. Being naturally of a labor-saving disposition, I have never considered it an aggravation of original sin to avoid as much as possible the old penalty, "In the sweat of thy brow," etc. To begin with developer.

In many galleries making developer is quite an elaborate performance. The iron is weighed with accuracy for each occasion, and then thoroughly pulverized in a mortar with a considerable waste of muscular tissue, then it is dissolved according to medical direction, "well shaken before taken." Then it must be filtered, and an hour of some person's time consumed in getting it ready each day. I avoid most of that trouble by a system that enables me to make developer for a day's use, at any time inside of three minutes, in every way as good and as accurate as the former process.

I keep a saturated solution of iron in a widemouthed well-stoppered bottle, constantly saturated; having an excess of iron, a drop of sulphuric acid or a little sulphate of copper keeps it from oxidizing, and it settles clear. By carefully decanting into a graduate the quantity desired, and filling it with clear water to the required dilution, and adding the acid and alcohol required, it is ready for immediate use. It can be made in smaller quantities, because it can be so easily replenished. I use a hydrometer to test its strength, which, of course, I make to vary with the temperature. I now use it at fifteen degrees. I also use iron to redevelop before fixing, when required; a weak solution, not more than five degrees, with a few drops of silver as usual.

Collodion I prepare on the same principle. I do not weigh anything; I use two widemouthed, glass-stoppered gallon bottles, for plain or normal collodion; one settling while using from the other. I buy cotton by the ounce, and calculate how many ounces of ether and alcohol are needed for the quantity. I put all the ether in the bottle, add the cotton, shake till thoroughly wet through, then add about one-quarter or one-half of the alcohol, and shake till entirely dissolved, which is rapidly accomplished, then add the balance of alcohol, shake well, and leave two weeks or a month to settle while using up the other bottle.

When desired to sensitize, I carefully decant and add from a sensitizing solution previously prepared and settled, so that no filtering or settling is necessary, and by using the "Scovill Pouring-bottles," of which I have over a dozen in use, and which are marked off in ounces with sufficient accuracy for all practical purposes, I can sensitize my collodion directly in the bottle, and use in five minutes after with entirely satisfactory results, but I do not prefer that extremely short cut; I generally sensitize about three to five pounds at a time, and leave to settle, and again decant carefully into the pouring-bottles for use.

Sensitizing solution I make by adding two ounces iodide of ammonium, one ounce iodide of cadmium, one ounce bromide of cadmium to seventeen ounces of alcohol, making about one hundred grains to each ounce of solution, allowing four hundred and thirty-seven grains to the ounce, and counting your dealer honest.

I also use lately rubber corks for my pouring-bottles, which makes them complete. I say rubber corks as the old deacon wanted the church ceiling whitewashed blue. The proper name would be "stopples," I suppose, but by whatever name they are a great improvement, and should be kept in stock by every photographic dealer, and used by every photographer. They are firm, tough, elastic, and close a bottle hermetically, as you might say; so there in no popping out of corks in hot weather, and no annoying bits dropping in after you have screwed them down tight, and wrung their blessed necks off getting them out again-the corks, not the stopples-you can't wring them off; they can stand it as long as you can. Try

I have made forty-two imperial negatives to-day (Wednesday, June 19th), all "fair to middling." I am tired. Good night.

E. K. Hough.

#### DEVELOPER.

KEEP a saturated solution of iron on hand. For use, reduce to fifteen grains by hydrometer the quantity required for a day's use; acetic acid, one ounce to twelve ounces of the fifteen-grain solution. If my bath is new, I don't use any alcohol unless it gives too strong a contrast. By adding one-half ounce or more of alcohol it will work softer. I think the adding of acetic acid soon before you use it, works better and quicker; but if the negatives lack vigor, I think that an older developer will work better also for copying. So it is a good plan to have some old on hand. Sometimes the best effects can be had by mixing old and new. I sometimes add a few drops of acetic acid to the developer just before I use it; I find that it has more to do with results than many are aware of. I have tried a great many articles in connection with the iron, but I believe that one can work more sure and get as good results without any of them.

A. W. KIMBALL.

#### OUR PAPER.

WE silver and fume our paper the night

before it is to be used, and for several reasons; in warm weather the evening air is cooler and favors the keeping of the paper, and I find it much more comfortable working with plenty of fresh air than being boxed up with a gas or kerosene light. Then again you are very certain no white light reaches the paper until it comes through the negative, and I am fully convinced that daylight, small it may be in quantity, is one great cause of yellow paper; and I, too, find that paper prints much nicer several hours after fuming than just after. Second, instead of putting prints into acid water direct, put them into a bath of plain water first. They will redden much more evenly, and are easier to handle.

JULIUS HALL.

#### How I Work.

I send you herewith my formulæ.

#### Collodion.

Alcohol and Ether, . equal parts.

Iodide of Ammonium, . 4½ grs. to the oz.

Bromide of Cadmium, . 2 grs. to the oz.

Gun-cotton, . . 5 grs. to the oz.

Silver bath from 30° to 40°, slightly acid.

#### Developer.

Iron, . . . . . 1 ounce. Water, . . . . . . 16 ounces. Acetic Acid, enough to flow smooth.

Seldom redevelop, but when I do, use

#### No. 1.

 Pyrogallie Aeid,
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 12 grains.

 Water,
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#### No. 2.

Silver Bath Solution, . 1 ounce. Water, . . . 1 "

Flow the plate with No. 1, and pour into a small bottle or developing cup; add two or three drops of No. 2, and flow off and on the negative until sufficient density is obtained.

#### Negative Varnish.

Alcohol,			16	ounces.
Gum Sandarac,			2	"
Gum Turpentine	(Ver	ice		
Turpentine)			1	ounce.

This varnish is good to retouch on without grinding, but in bad cases I grind the face part only by rubbing briskly with the ball of the finger tightly drawn. It gives a surface much finer than pumice-stone.

For retouching I use Faber's leads (graphite), in the patent holders, HHHH and HHH.

#### Printing Bath.

 Silver,
 .
 .
 60 grains.

 Water,
 .
 .
 1 ounce.

 Nitrate of Ammonium,
 .
 30 grains.

 Made slightly alkaline.

#### Toning Bath.

Gold in a quantity of water sufficient to tone in about ten minutes; make slightly alkaline with a solution of sal soda, and add from one-quarter to one-half ounce table salt. Let stand about a half hour.

I have a little dodge in printing which, while it is not new or original, is not generally practiced by photographers, but which, should it be adopted, would, I believe, give general satisfaction. I had a great deal of trouble to get my printer to trim his prints so that they would look right on the card; some would be on one side, others too high or too low, some not straight, etc. It was too much trouble for me to cut them out myself, so I adopted the plan of trimming my paper before I print. A half sheet is folded so as to make sixteen cards, and the bad edges are allowed to lap over sufficiently to be entirely cut off in trimming. After the paper is folded the glass form is laid on, and the paper is cut with a pair of sharp scissors. The negative retoucher has a glass the same size as the printer's, and he lays out the negative with this glass, and pastes little strips of gummed paper, one on top, two on the right-hand side, one near the top, and one near the bottom. The printer now has a guide to put his paper on the negative, and every print comes on the paper just alike. It was long before I could make up my mind to try this plan, for fear there would be much trouble in getting the paper on the negative, but I find the trouble less, and the satisfaction of knowing that your prints are all trimmed after you are through printing, and that they are all alike on the paper, is great. FRANK JEWELL.

#### A CHARMER.

A "WRINKLE" or "dodge" is wanted by "return mail!" I have a few valuable ones in my regular work, but as I am not limited to that, I give one I have used for twenty years, and have seen no one else use it for this purpose. Take a hollow metallic penstock, bore an eighth-inch hole in the upper end; run a pencil or round stick in the lower end, three-quarters up; take a fine file, cut one-third from upper end, square across and square in, one-quarter through; then file the lower part scarf fashion, so as to make a whistle; pull out the wood, cut off half an inch; cut off about one-quarter of this plug on one side; run it up, having the flat side agree with the opening, whistle fashion; when ready to expose, have a tumbler half full of water at hand, place the "charmer." in your mouth, take the tumbler in one hand, insert the "charmer" into the water, and blow; the baby, seeing the water bubble and hearing the noise, is sure to be still and pleased, it being a new thing. I have made successful sittings of every baby for over a

It takes but a few minutes to make the article, and it will save to all using it many dollars that would otherwise be lost. In subsequent sittings of the same child, variations can be made by vocal sounds while whistling. With a little practice you can imitate the canary bird almost to perfection.

J. E. SMALL.

#### MY FORMULÆ.

My formulæ are as follows: Negative bath, forty grains strong, made with well water, which is free from organic matter, and with as little chloride, carbonate, etc., as can be had, but a little of either of these does no harm. Iodize by allowing to stand over night with an excess of washed iodide of silver; add enough nitric acid to work clear. Use a large bath, and never add any more iodide of silver, but keep up the bulk of solution by adding an uniodized solution of same strength. In this way no pinholes from supersaturation will be formed. When the solution becomes foul from use, evaporate the ether and alcohol in a porcelain dish, and while hot, add sal soda or bicarbonate of soda solution, till a permanent precipitate of carbonate of silver remains; keep up the heat half an hour longer, when the whole will turn very black. If it does not do so, sufficient soda has not been added. Make up to the original bulk with pure water and filter. Add acid till it works clear, usually about forty drops to a gallon of solution. Never filter an acid solution through the same filter used after boiling, as the acid will dissolve the precipitated filth and foul the bath.

#### Collodion.

Alcohol,	$\frac{1}{2}$ ounce.
Iodide of Cadmium, .	3 grains.
Iodide of Ammonium,	2 "
Bromide of Cadmium,	3 "
Climax Cotton,	6 "
Ether,	3 ounce.

Make a good stock so as to use at least six months old, and color as you use with a little old collodion or tincture of iodine.

This collodion is for portraits, views, and ordinary work. Another, which is useful where great contrast is desired, such as copies, furniture, etc., is as follows:

Alcohol,	$\frac{1}{2}$ ounce.
Iodide of Cadmium, .	 3 grains.
Iodide of Ammonium,	2 "
Brômide of Cadmium,	½ grain.
Chloride of Strontium,	1 "
Climax Cotton,	6 grains.
Ether,	½ ounce.

#### Developer.

Sulphate of Iron,	1 ounce.
Sulph. of Iron and Ammon.,	1 "
Water,	32 ounces
Collocine (acid with free	
sulphuric acid),	2 drops.
Acetic Acid No. 8,	1 ounce.

If the collocine be omitted, double the acid. Used full strength only in case of short time, bad light, or low temperature, otherwise reduced one half with a mixture of acid, collocine, and water in the same proportions. Commence with the weak solution, and if found underexposed flow on the strong. Fix with cyanide.

Printing.—Use my ready sensitized paper, without which I could not keep house. The preparation is not given for obvious reasons.

Toning.—Make a solution of chloride of gold (acid), eight grains metal to the ounce.

To make the bath, boil one drachm of this solution in a test-tube over a spirit-lamp, with an excess of powdered chalk, for five or ten minutes. Add twenty grains acetate of soda and ten ounces of water, and use the next day. Keep the bath, and strengthen as required at the rate of one drachm gold solution for two or three sheets of paper, boiled with chalk as before, an hour or more before use. If the toning is slow, the prints mealy, or a blacker tone is wanted, add a little bicarbonate of soda, say two or three drops saturated solution for each drachm of

the strong gold solution. Fix in hypo about one to six. If blisters appear, which is rarely the case, use a bath of salt water after both the toning and fixing. C. F. RICHARDSON.

PERMANENT BLACK.—Photographers in want of a black paint that is cheap, that is neat and clean, and dries in a few moments, try lampblack mixed with negative varnish. As the brush always dries hard, it is best to make a new one every time, by winding a rag around the end of a short stick.

FORESTER CLARK.

### Editor's Table.

PICTURES RECEIVED .- It is a long while since we have received so many really elegant photographs as during the past month, and the most of them from long distances from our larger eastern cities. Mr. I. W. TABER, of San Francisco, heads the list with some lovely pictures of his baby daughter, dressed fancifully, in varied positions, which are wondrous, sweet, and pretty, and show master photographic work. They are unequalled. "Utah's Best Crop," is the title given by Mr. C. R. SAVAGE, of Salt Lake City, to a picture of about one hundred babies on one sheet. It is very funny and entertaining, and good. Mr. FRANK G. ABELL, of Portland, Oregon, sends us some capital Cabinet pictures, those of Judge DEADY and Miss RENA being the best. The whole workmanship is excellent. The same may be said of some fine Cabinets from Mr. E. D. Ormsby, Oakland, Cal., who continually makes progress, and keeps abreast the times. Mr. John Pitcher Spooner, Stockton, Cal., is represented this month by a sweet picture of a little girl, splendidly taken. Mr. C. E. ORR, Sandwich, Ill., sends us some examples of the "Panel" style, which are very creditable and good. Mr. J. E. BEEBE, Chicago, favors us with a picture of his bijou studio, from which he sends forth such excellent pictures. Some really fine cabinets have come to us from Mr. George Moore, Seattle, Washington Territory, which surely do him credit. His pictures of children are specially fine. More of the same sort come from Mr. W. H. MOORE, Marion, Ohio. This gentleman has reason to be very proud of his work, for it shows that when he gets "fine subjects" he is fully competent to treat them.

Messrs. F. Parker and C. Hasselman have formed a co-partnership, at Los Angelos, Cal., and send us some excellent Cabinet pictures. Both the manipulation and the retouching are specially good, judgment and taste being exercised throughout. Our old, but quick friend, Mr. A. Hesler, sends us some capital groups and single pictures of children, made by his ordinary process, which certainly cannot be excelled by any lightning process. We congratulate all these gentlemen on their ability to produce such uniformly excellent work.

S. & M. Dresden Albumen Paper.—Mr. G. Gennert, 38 Maiden Lane, New York, importer of the excellent paper branded as above, desires us to say that this paper was the first Extra Brilliant paper imported into this country, some ten years ago, and that it has retained its superiority over all other brands which have spring up since, which fact is substantiated by the increasing demand for it. Mr. Gennert is the importer of the paper, but it is for sale by all stock-dealers.

"LIGHTNING."—The "Lightning" managers are somewhat chaffed at being the least hit opposed in their peregrinations, and some faint and harmless thunder follows. It is not always the case that "lightning" has everything its own way, and why should it now? As heretofore promised, we give our readers a copy of the "Lightning Negative Process," furnished by LAMBERT to his victims, for making flat and underexposed pictures. Any smart photographer will see through the thing at once, and

save his money. Why should a redeveloper and intensifier and "continuator" be used for this process if it works as quickly as he claims? Do as our friend HESLER has done, and develop the power which you already have in your own every-day process. Mr. HESLER sends us a picture of a man on a broad grin, of which he says, "the exposure was made in the shortest time I could do it." Mr. HESLER has been privileged to work the "Lightning" process also, and although "the developer is as good as plain iron, and the continuator looks like iron and acetic acid, to which silver must be added to work it, and the collodion looks to me very much like potassium chloride, to which a little eyanide has been added, and fused silver is used, I prefer my own process."

Messrs. A. M. Collins, Son & Co., Philadelphia, have favored us with samples of a number of pretty styles of the "Caterson" ferrotype holders; also of "Extra No. 1" cardboard, gray and white, which they furnish as large as  $36 \times 50$  inches; likewise samples of their "minette" card-mounts, together with an album showing nearly two hundred copyright designs for imprinting photograph cards by the lithographic process. This latter is an elegant work, and shows an amazing amount of beauty and fertility of design. Europe can no longer compete with our friends here in the production of such splendid goods.

SCOVILL MANUFACTURING Co., New York, have favored us with a copy of the English edition (they being the American publishers) of Dr. P. E. Liesegang's Manual of the Carbon Process, and its Use in Making Enlargements, etc. It contains one hundred and forty-six pages, and is embellished by a full sheet carbon picture. It goes into all the details of the process fully, and no one is more competent to do this than the talented author of this work. He is an old practitioner, and his instructive and lively style makes his book very satisfying and plain. Those who are interested in working the carbon process will, of course, avail themselves of the opportunity of possessing such a valuable instructor. Price, \$1.50, post-paid.

WE have received a copy of the third edition of Mons. A. Liebert's excellent treatise on *Photography in America*, too late for review this month. It shall have attention in our next.

OBITUARY.—On the night of Thursday, May 23d, at the destructive fire on Market Street, Hartford, Conn., three firemen were killed by the

sudden fall of a wall of the burning building. Among the deceased we notice with regret the name of Daniel S. Camp, an old friend and subscriber.

As a photographer he stood among the first rank; and as an active member of society his loss will be deeply felt, and his early death sincerely mourned. His memory deserves the highest honors, as that of a noble, self-sacrificing man, who bravely laid down his life in his perfect devotion to his duty.

We have also received the news of the death of Mr. Edward B. Bretz, a young photographer of much promise. He died at the house of his former employer, at Pottsville, Pa., aged 27.

THE Tazewell Independent gives a very pleasing testimonial to the skill and ability of their townsman, Mr. T. B. WILSON, photographer, of Washington, Tazewell County, Ill. We congratulate him.

The thirteenth exhibition of the Massachusetts Charitable Mechanic Association, will open in Boston, on Monday, September 2d, 1878.

Parties wishing to obtain space for exhibits, should apply at once to the Secretary, Joseph L. Bates, Esq., No 4 Beacon Street, Boston. No fee is exacted for entries or space occupied.

RECENTLY an album has been presented to the State Library, by Mr. C. R. Roshon, Harrisburg, Pa., containing three hundred Cabinet photographs of the Governor, heads of departments, and members of the Legislature. Mr. Roshon was honored by a special meeting of the members of the Legislature and other public men, on the occasion of the presentation of his album.

We have just received of Mr. Albert Levy, of 77 University Place, New York, a four-page circular, containing full particulars as to the use of his emulsion and dry plates. He also describes a number of other useful articles which he manufactures and has for sale.

RESULT OF READING THE LITERATURE OF THE PROFESSION.—Mr. F. W. BARTLETT, of Galveston, Texas, writes as follows: "I have been a regular subscriber to the *Photographer*, through BLESSING & BROTHER, for a number of years, and I can say that the journal has saved me more than \$25.00 by pitching into this 'Lightning' humbug. It has had the good effect of putting me to my trumps, and I believe I can make negatives in as quick time as any one; negatives of grown people in two seconds, and babies as quick as I can let the light on and off. All the photographers here say 'Lightning' won't work."

### Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

Wanted.—A strictly first-class operator as partner in one of the leading galleries of New England. To an operator who is an artistic poser, and can prove himself master of the skylight and dark-room, a good opening is offered to take the place of retiring partner. Address

"PARTNER," care of E. L. WILSON, 116 N. Seventh St., Philadelphia.

For Sale.—A photograph gallery located in the town of Smyrna, Delaware. Population of town and circuit, six thousand. Established twenty years; must be sold at once, with or without instruments, on very easy terms. Owner in California. Apply or address

W. G. HOLDING, P. O. Box 83, Smyrna, Del.

Wanted.—A first-class photographer to take charge of gallery from August 1st. Must be well posted in all branches. Specimens of work and photograph of self desired, the same to be returned. Address, stating references,

MRS. WELD, Penn Yan, New York.

# Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

Wanted.—A first-class artist, who can work in crayon, oil, or water colors, in my studio. And an operator who would like to purchase one half interest in my old gallery, 951 Wabash Av., competent to take full charge of that department. Address

C. D. Mosher,

125 State Street, Chicago, Ills.

For Sale.—An old-established photograph gallery, for \$1200, cash; everything complete. Satisfactory reasons for selling. Also, only gallery in a town of 5000 inhabitants in Kentucky, for \$350, cash. For particulars, address

R. J., care P. Smith & Co., 56 West Fourth St., Cincinnati, Ohio. RICHARDSON'S SENSITIZED PAPER is economical, because it saves time, trouble, and money, and its printing qualities are unsurpassed. See advertisement in *Photographer* for July and August, 1876, *Mosaics* for 1878, or send for circular to

C. F. RICHARDSON,
Wakefield, Mass.

Wanted.—Some one that is not afraid of work, that can do first-class retouching and printing. No other need apply. Address

E. L EATON, Omaha, Neb.

TO PHOTOGRAPHERS.—We make Patent Canvas Portraits, size 8x10, for \$2.00. The best OIL PORTRAITS in the United States for the money. If you don't believe it send us an order. Every portrait warranted.

For circulars, address with stamp,
WINSOR & WHIPPLE, Artists,
Olean, New York.

#### EMULSION PHOTOGRAPHIQUE FRANCAISE

Albert Levy, 77 University Place, Sole Proprietor.

New York, June 14th, 1878.

Having been trying for the past two or three years to find Dry Plates which were sensitive and reliable, I am well pleased to be able at the present time to get any of my amateur photographic friends out of the fog, and show them the means of obtaining Dry Plates which work well and reliable in all places and weather, and require no art or eleverness to produce good, clear negatives, vigorous and brilliant prints.

I purchased of Mr. Albert Levy one dozen of his Dry Plates on trial, and the result so far exceeded my expectations that I really began to think that I was a photographer, forgetting it was the plates and not the man. I have long ago discontinued using bath plates, and all other plates or emulsion except his, and have invariably found them to work the same.

Yours, etc., H. W. WICKHAM, 384 and 386 Broadway, N. Y.

\$900, PART CASH, will buy one of the wellknown, best paying, and best located galleries in Chicago; having six rooms besides the gallery, all for \$40 a month. With or without the instru-J. W. DENSLOW. ments. Address

184 E. Madison Street, Chicago, Ills.

#### Waymouth's Vignette Papers.

WANTED .- An operator who thoroughly understands making first-class negatives, artistic lighting and posing, and retouch if required. Send samples of work and photograph of self, to be - returned. Address T. H. HIGGINS, Wheeling, W. Va.

FOR SALE .- One 14 x 17 Globe View Lens, cost \$135. Also, one View Box, folding hed, two fronts; plateholder, 14 x 14, with reversible kits to 4-4 size. Box and Lens warranted in good order. Price, \$70, cash.

C. E. MYERS, Mohawk, N. Y.

OPERATOR WANTED .- One who thoroughly understands making first-class negatives, artistic posing, and retouch negatives if required. None but strictly first-class need apply. Address

H. D. A., care of E. L. WILSON, 116 N. Seventh Street, Philadelphia.

Photographic View Wagon for Sale. — A large one, in good order. Will be delivered free to any depot in the city. Price low.

CENTENNIAL PHOTOGRAPHIC Co., 116 N. Seventh St., Philadelphia.

ZENTMAYER STEREOSCOPIC LENSES FOR SALE. -A pair of 21 inch focus, good as new, will be sold for \$25. Address

Z 21, care Philadelphia Photographer, 116 N. Seventh St., Philadelphia.

#### CHEAP! CHEAP!! A SUPERB MICROSCOPE

and Outfit For Sale!

ONE ZENTMAYER'S ELEGANT "GRAND AMERI-CAN BINOCULAR," fitted with objectives 1-10th to 2 inches, all of Zentmayer's accessories, case of mounting material and instruments; two cabinets of assorted foreign and American objects; Moller's Diatom Test-plate, etc., embracing a perfect outfit for a student or professional Microscopist. Cost over \$800. Address

W. J. LAND, P. O. Box 305, Atlanta, Ga.

A. LAMOR,

EDW. LAMOR,

ARTISTS. Photographs finished in Water Colors, Crayon, or India Ink, in the highest style of the art.

PORTRAITS IN OIL A SPECIALTY.

Negatives finely retouched.

738 SANSOM STREET, PHILADELPHIA, PA.

#### THE WONDERFUL EURYSCOPE.

CLEVELAND, OHIO, March 13th, 1878. BENJ. FRENCH & Co.:

DEAR SIRS .- Pardon me for saying I spleened against the term "wonderful" in connection with the Euryscope, as a sensational description. After having used this instrument for various purposes, both indoor and out, I am bound to admit that wonderful is the right word.

Intelligent photographers will not be without so powerful an instrument, particularly when sold at such low prices.

> Yours truly, J. F. RYDER.

> > Boston, May 7th, 1878.

BENJ. FRENCH & Co.:

DEAR SIRS .-- After a thorough and every way satisfactory test of No. 3 Euryscope purchased of you a few weeks since, it is with pleasure that we accord it our hearty commendation; its remarkable light and great breadth of field, renders it especially desirable for groups, etc. We therefore beg to congratulate you on the entire success accompanying the introduction of this valuable adjunct to photography.

Yours truly, NOTMAN & CAMPBELL.

GREAT chance to make money. If you can't get gold you can get greenbacks. We need a person in every town to take subscriptions for the largest, cheapest and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address "The People's Journal,"

#### Hance's Photographic Specialties. See Advertisement.

Portland, Maine.

BURREL'S CHART AND HINTS TO PATRONS .-Your gallery is not complete without them. For particulars, see advertisement in January, February, and March, 1876, issues of this journal. Price, \$1.25, unmounted, by mail, or by express, mounted.

TRY HALL'S TRANSPARENT VARNISH FOR FERROTYPES.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

As operator or retoucher; several years' exexperience; best references given. Fully posted in every branch of photography. Address Drawer 29, Brantford, Ontario.

As India-ink artist. Address G. H. Rupp, Atwater, Ohio.

I was unfortunate enough to accept a situation which does not suit, and must make a change soon. Refer to April *Photographer*. Please address for full particulars, Garvey Donaldson, Knoxville, Tenn.

By a young man, twenty years of age, and having four years' experience in the business, a situation as general assistant; best of reference given. Address Assistant, care of J. E. McNulty, over 45 E. Main Street, Rochester, N. Y.

By a young photographer, a position as operator or printer, or would run a gallery on shares. Address W. H. Rishel, 164 Central Avenue, Cincinnati, Ohio.

By a first-class operator and printer, or will take charge of some good gallery for a percentage. Plenty of reference given. Address F. L. Nicholson, Honey Grove, Fannin Co., Texas.

As negative retoucher, printer, and toner, by a married man; can operate; three years' experience with last employer. Address Retoucher, 1149 Milwaukee Avenue, Chicago, Ills.

A first-class artist in India-ink, negatives, water colors, and crayon, wants a permanent situation in this city or elsewhere. Address Jos. Hammely, Artist, care M. Hacker, 304 Fifth St., near Second Avenue, New York.

By a first-class retoucher, in a small but good gallery, where he also has to assist at operating. Will send samples and best of references as to character and ability. Speaks English and German. Address Retoucher, 607 Sixth Street, N. W., Washington, D. C.

In a good gallery, as assistant generally; retouching, printing and toning, a specialty. Address A. D. Tuttle, Lebanon, Warren Co., Ohio.

As assistant operator, printer, and toner; good references. Address D. T. Hickey, Springfield,



### JAMES L. PERRIGO, Agt.,

(SUCCESSOR TO FAIRBANK, MURPHY & Co.)

No. 81 N. HOWARD STREET, BALTIMORE, MD.

MANUFACTURER OF

#### BEVEL MATTS AND PASSEPARTOUTS.

DISPLAY MATTS A SPECIALTY.

VELVET, ENGLISH, AND PEBBLE MATTS.

# THAYER'S QUICK NEGATIVE PROCESS.

It is not pretended that this is a

# Lightning Process,

But we do claim that it will work in less time than any process hitherto introduced.

No process yet known will work *positively instantaneous* on indoor work, an appreciable time must (for such work) be given for the light to act upon the plate. We claim also that the

#### BATH, COLLODION and DEVELOPER,

that we offer, will, if used according to directions, produce better negatives in shorter exposures than any other in the market, no matter how loud-sounding their names.

Although we have been to great expense in procuring the Formulas for preparing these Quick-working materials, we offer them (the materials) at reasonable prices, for the benefit of the Art generally. Every article is carefully and thoroughly tested before it is sent out and all made to work so as to produce the *finest results* in the *qvickest possible time*.

#### NO LICENSE REQUIRED.

Photographers everywhere are asked to give these Chemicals a trial and be satisfied that they are all that we claim them to be.

#### PRICES.

COLLODION, per half pound,	\$ 1 00
DEVELOPER, Quadruple strength, per half gallon,	50
CONTINUATOR, " per pint,	. 50
SILVER BATH, ready for use, guaranteed 40 grs. strong, per quart,	4.00
Boxing, unless ordered with other goods,	25

Full directions accompany each article.

Manufactured and for sale only by

#### N. C. THAYER & CO..

250 & 252 Wabash Ave.

CHICAGO

#### THAYER'S QUICK-NEGATIVE PROCESS.

N. C. Thayer & Co.

GENTS: I have given your materials for "rapid negative work" a very thorough, practical, and competitive trial, and find it to work as quick as the quickest I have ever tried, and gives by far the best results of any I have ever used.

Respectfully,

A. HESLER.

# READ

#### WHAT LEADING PHOTOGRAPHERS SAY

- ABOUT -

### THAYER'S RAPID PROCESS.

N. C. THAYER & CO.

No. 339 West Madison St., Chicago, June 4, 1878.

Having made many comparative tests between your Quick Process and mine at its best, which is very rapid, I must admit that yours is much the quickest, and the results as good as the best. The harmony of the solutions is perfect. I consider it a valuable, or rather, an invaluable process.

Yours, etc.,

D. H. CROSS.

N. C. THAYER & CO.

CHICAGO, June 4, 1878.

Dear Sir: Having given your material for "Rapid Negative Work" a thorough trial, comparing it with my own process, which I flattered myself could not be improved upon, it gives me pleasure to say that it is much quicker than mine, and the results are all that could be desired by the best photographer in the world.

Respectfully,

J. K. STEVENS.

85 & 87 East Madison Street.

N. C. THAYER & CO.

EAVANSTON, May 24, 1878.

Gents: I have given your material for "Rapid Negative Work" a very thorough, practical, and competitive trial, and find it to work as quick as the quickest I have ever tried, and gives by far the best results of any preparation I have ever used.

Respectfully,

A. HESLER.

N. C. THAYER & CO.

CENTRALIA, ILL., June 17, 1878.

Dear Sirs: The Rapid Bath, etc., arrived all right, and to-day I made groups in about four seconds, at four o'clock, P.M. I made some splendid negatives of babies in less than two seconds. Everything works like a charm. It appears to me that I can almost make a negative of a child instantaneous. I worked Lambert's (or tried to) for almost two months, and after making a new bath I never got a negative in less than six seconds, and poor at that. So far as my experience goes with the two processes—yours and Lambert's—yours beats it two to one, both in time and quality of negative.

Very respectfully yours,

FRANK McKNIGHT.

# ST. LOUIS,

# J. C. SOMERVILLE

No. 17 South Fifth Street.

#### OUTFITS A SPECIALTY!

THE BEST GOODS AT THE VERY LOWEST PRICES FOR CASH.

Somerville's Extra Negative Collodion.

Somerville's Extra Ferrotype Collodion.

Somerville's New Diamond Varnish.

Somerville's Retouching Varnish.

Tilford's Collodion.
P. & W. Chemicals.
Frames and Matts of
every Description.

#### PHOTO-CHROME OUTFITS COMPLETE, \$2.50.

Convex Glass, Cotton and Silk Velvet Passepartouts, and all goods for the Photo-Chrome Picture kept in stock and sold at the lowest market prices.

Seventeen years' experience. Cash prices and prompt shipment. New packing boxes of the right size at cost. Send a trial order. Send for new Illustrated Price List and Budget for 1878.

1878.——SPRING DESIGNS——1878.

# NEW BACKGROUNDS AND ACCESSORIES

PLEASANT WAY HOME. BEEBE GARDEN.

GOLDEN PETALS. WOODLAWN. BEEBE INTERIOR.
Get RUSTIC BRIDGE for use with Shaded Stream Background.
ROUND END BALUSTRADE, etc., etc.

Tree, Window, Door, and Cabinet Slips in great variety.

Special and Proprietary Designs to order.

Sample Photos. (to be returned and not for copying) on application. Enclose stamp.

#### THE P. P. PRIZE MEDAL PICTURES, by Mr. ELTON,

Were made with Backgrounds designed and painted by the subscriber expressly for the occasion.

PRICES based on quality and elaboration of designs.

Address

LAFAYETTE W. SEAVEY, Lafayette Place, New York.

THE

# PHOTOGRAPHIC COLORISTS' GUIDE.

By JOHN L. GIHON,

ONE OF THE MOST TALENTED AND ABLE ARTISTS IN THE PROFESSION.

# NOW READY!

PHOTOGRAPHIC COLORING.—The growing demand for a fresh work on PHOTOGRAPHIC COLORING, one that contains full instructions on all the new and improved methods—for like photography itself, photo. coloring has improved and progressed—has led to the publication of the above.

#### ITS CONTENTS ARE:

Preface.

- Chap. I. On India-Ink Work.
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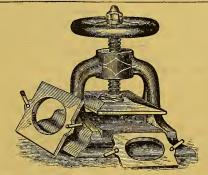
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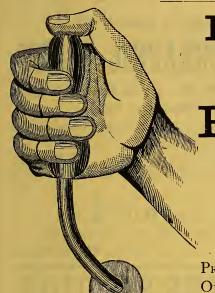
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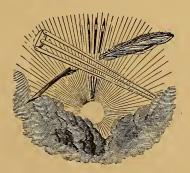
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#### DEVOTED TO PHOTOGRAPHY.

EDITED BY EDWARD L. WILSON. .

THE OFFICIAL ORGAN OF THE NATIONAL PHOTOGRAPHIC ASSOCIATION OF THE UNITED STATES.

August, 1878.



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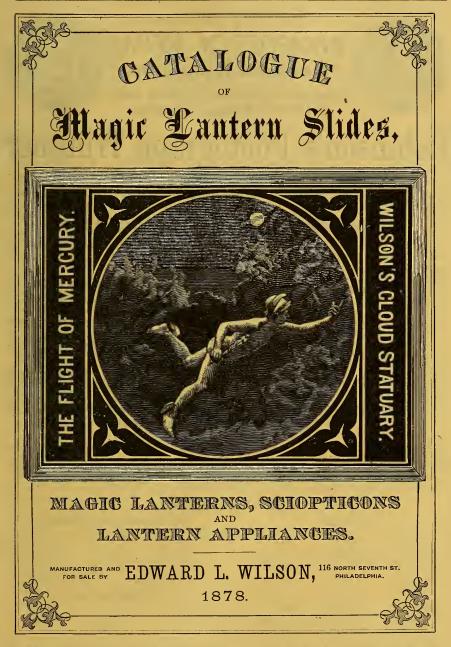
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Vol. XV.

## AUGUST, 1878.

No. 176.

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## INTER-STATE INDUSTRIAL EX-POSITION, OF CHICAGO.

THE Sixth Annual Exhibition of this honored institution opens September 4th, and closes October 19th, 1878. Our friends Hesler, Brand, and Mosher are extremely anxious that photography should take honorable position and rank in this great annual exhibition, and although the notice reaches photographers rather late, we believe special arrangements can be made (although we are not authorized to say this), by which the pictures of those who wish to exhibit may be sent later. We earnestly hope that advantage will be taken of this opportunity, and add the circular of the committee, viz.:

"CHICAGO, July 5th, 1878.

"To the Photographers of the United States:

"The Inter-State Industrial Exposition of Chicago has assigned Gallery 'E' in the Art Hall for the display of photographs at the fall exhibition, opening September 4th, and closing October 19th, 1878. The Art Committee has appointed the undersigned as a jury upon the acceptance of pictures, which will be selected solely on the ground of merit. The gallery is 21 by 44 feet in size, lighted by a skylight, and it is desirable to cover the walls with thoroughly artistic work—quality, not quantity, being the object, and for this purpose you are invited to

send your best pictures, and to use your influence with acquaintances in the profession.

"Plain photographs, prints finished in ink, crayon, or water colors, and crayons after photographs will be received; if an extended display is desired, previous correspondence with the chairman of the committee will be necessary, to prevent disappointment, as the space is limited. Crayon, ink, and water-color pictures will be catalogued under the name of the individual artist, and as loaned by the photographer.

"A list of the contributions, with the estimate of the space required, should be sent to the chairman of the committee before August 1st, and a duplicate list should be inclosed with the pictures, which must be delivered at the Exposition Building on or before August 12th; all charges having been prepaid. Packages should be plainly addressed, 'Art Department, Inter-State Industrial Exposition, Chicago.'

"Each picture must have a separate and suitable frame, projecting corners and oval sizes being avoided.

"No cards will be allowed upon the pictures, the Exposition Catalogue number being the proper designation; neat gilt tablets with the title and the name of the contributor will be allowed as in water-color paintings, but anything of an advertising nature will be sufficient cause for rejection of the works.

"The accepted pictures will be hung by the Exposition, and no charges will be made to exhibitors from other cities for repacking or other services in the Art Hall.

"Shipping directions in regard to the return of pictures should in all cases accompany the list of contributions. Prompt information of the desire of exhibiting is respectfully requested.

"Benjamin Durham, A. Hesler, E. L. Brand, C. D. Mosher, G. J. Klein, Commit-

tee on Photography."

## WISE WORDS FROM THE WORKERS.

FOR the last few years I have spent most of my time under the skylight, and there the dodging is of such a nature that one cannot put much of an idea of it on

paper for publishing.

It takes all my strength, skill, and good nature to even keep the small folks in a condition that we may be able to print their shadows on either silvered paper or paper prepared for carbon pictures. I may be a welcome visitor in the dark-room, but have very little to do in putting together the materials used there, so you see I am now only a component part of the whole number.

I still keep up my interest in the carbon work, and read all that is published for or against it, knowing by past experience what is practical, and using only that which will do the work required, am able to produce results that will please our patrons, and have the satisfaction of knowing that what we give them will remain as they receive it.

I am aware that many carbon prints have been made that have and will change, but only the fugitive colors that have been used to give the color of silver prints. Indiaink, lampblack, boneblack, warmed with some permanent red or warm brown color, will give a pleasing color for any style of print.

I do not think it best to imitate silver prints. Make the carbon what it is, a distinct style, and let it stand on its own merits.

A word to any one who is making transparencies for enlarged work. First clean a good smooth glass (plate-glass is the best),

and for the final cleaning rub it over with a little tale, only be sure that you leave none of the powder upon the surface. Now coat the glass with collodion, the same as for a double transfer picture; immerse the glass in water; sensitize your tissue after draining as usual, squeeze on to the collodionized . glass, put into the drying-room until dry; it will give you a surface, and hold the tissue in such shape as not to break the surface in development, only swelling as much as the collodion allows it to; besides, it is much the easiest way to collodionize the surface of the tissue. After printing, take a glass that has been albumenized, coat with collodion as usual, put the surfaces together, and develop as usual. As the hot days are coming on do not use your sensitizing solution too strong, or keep the tissue in until it rots it, for then, with other troubles, you will have the whole surface of the print covered with small blisters. Handle your carbon work with as much care as you do other photographic processes. I have seen many specimens of carbon work that looked as if the parties thought it a black, dirty business, and it did not matter much if they did not take as much care to make a good print as they did to make the good negative they had printed from. With the tissue of our own manufacture, we use a two per cent. solution of bichromate of potassa for sensitizing, keeping the solution cool, even to putting it on ice in the hottest weather.

We send you two prints as near silver color as we care to see. The red is a preparation of madder, the black india-ink. The one half covered with a mask, has been exposed forty-one days in sunlight, a test that is hard to bear; you can continue the exposure, and report at some distant day how much is left of the same.

Print No. 3, the tissue was made with india-ink and carmine lake. The print has been exposed fourteen months to a south light.

In conclusion, I would say I have prints thirteen years old that have not changed at all.

Very truly yours,

FRANK ROWELL, Boston, Mass.

MY IDEA.

My idea of working is this, that the more

simple and less complicated the formula the better. I see considerable experimenting has been done with the so-called "Lightning Process." For my part, I don't believe in any of this overly quick working for negatives. My aim in rapidity is to make my negatives of grown persons, or those sufficiently so to keep still, in from fifteen to twenty seconds, summer and winter. With the "little Popsy Wopsies," more rapid exposures are, of course, necessary; and to gain them I throw open my shade screens, and by this means get sufficient light to get full time in two to four seconds on all ordinary days; we don't pretend to do this when there is a "total eclipse." My formulæ I will add, and if by chance it does any brother chip a good turn I shall feel well re-But my experience has been that that which works well in the hands of one operator often fails with another. Therefore, fellow-workers, don't say, "The same old story; why don't he give us something new?"

In the first place, I don't believe in albumenizing; have never been able to work it even. All the time trouble, dust, and dirty negatives, which I detest.

### Collodion.

Alcohol and Ether, . . equal parts.

Iodide of Ammonium, . . 4 grains.

Anthony's Negative Cotton, . 5 "

Bromide of Potassium, . . 21 or ½ gr.

As your individual light may require mix as laid down above, dissolving the ammonium in your alcohol and ether; the cotton, and, last, bromide dissolved in the *smallest* possible quantity of water.

### Developer.

Saturated Solution of Iron, . 8 ounces.

Acetic Acid, No. 8, . . 8 "

Alcohol, . . . . 1 to 2 ozs.

A half-gallon bottle filled full after adding the above. I seldom redevelop, but when I have occasion to do so, take for redeveloper one ounce of developer, silver bath, ten to fifteen drops; mix and flow before fixing, otherwise you are likely to produce hard printing negatives. Mr. George W. Davies, my printer, works Mr. Hearn's formulæ, but for the benefit of those travel-

ling, or working in a small way, I give printing formulæ which will not require fuming, and if properly handled, will give fine effects with very little trouble.

Silver to the ounce, . 45 to 50 grains. Nitrate of Ammonia, . 3 grains. Concentrated Ammonia, 2 drops.

Wash in acetic acid one-half ounce to half a gallon of water. Wash well after the prints have reduced. Tone with gold and acetate of soda, adding a little bicarbonate to neutralize any acid there may be in the gold.

I will here add that one ounce of alcohol added to the hypo bath will tend to stop your prints from being coarse or mealy. My sink for washing is arranged with false bottom perforated with holes, water entering below the false bottom, and a shower falling on the surface of the sink from above. This fills in about fifteen minutes, and empties by siphon in four minutes, thus washing the prints fully in two or three hours.

Have introduced the "Panels," and they seem to meet the wants of the ladies; something to show their dress and not accessories. I am making them on  $11 \times 14$  plates, so that they frame in  $13 \times 21$ , and very neat for parlor. I will send you one in a few days for your "study." Frank G. Abell,

Portland, Oregon.

### SPARE MOMENTS.

A FEW leisure moments find the photographer now and then, and ready to drop into the nearest chair and woo the drowsy god. But a better use of time is to drive a few tacks in the carpet, or brush up the crumbs dropped by the last family of children, or tear to pieces and repair that leaky plateholder (of course you have two for every box); or rehang the group of specimens over the table, or put a few fresh ones at the door; clean a few windows, "clean 'em bully," a la Anderson. Look over your order-book, and see if all your promises have been fulfilled to your patrons. Apply a few brushes of paint to some door casings where needed; screw on a castor to the background, and complete your tour of inspection in spare moments by looking at the cleanliness of your printingand toning-room, dishes and tubs. And we find it beneficial to jacket our hypo barrel

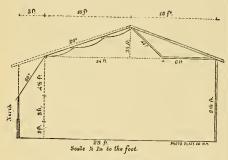
with a bit of old carpet; saves our clothing, and is clean. Try it, and you will perhaps feel partly repaid at least for perusing Spare Moments.

J. PITCHER SPOONER,

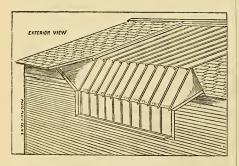
Stockton, Cal.

### FRENCH'S SKYLIGHT PLAN.

Not having anything in my mind that is new, or that I think would be particularly interesting to your readers in the way of an article, I have drawn a hastily prepared sketch of a skylight that I think would be superior to anything I have seen, although I cannot speak from practical knowledge; but if I were to build, I should build one like it; and if you think it would be worth while to illustrate it in the journal it is at your disposal to do so.



I think its advantages are these: First, being low, it will work soft and quick; the first slant of the glass roof being at an angle of only twenty degrees, it brings the highest point near the sitter. Second, the second slant being at an angle of sixty degrees, it shuts out the sun's rays, and gives a fine illumination upon the sitter at an angle of



fifty or sixty degrees, and in the exterior drawing it will be seen that the corners of

the roof being cut off, or slanted back from the light, gives full scope for all the light obtainable. Of course the light would have to be boxed in, to secure a ceiling which I have represented at an angle of forty-five degrees.

If this description is not satisfactory and comprehensive enough for the public, make it up in your own way.

Yours respectfully, C. M. French.
Garrettsville, Ohio.

### STEREOSCOPIC PRINTING.

I SEND you a little dodge in the printing line, which I find useful in making prints from stereoscopic negatives, and by which cutting and transposing either the prints or the negatives are saved. In the first place, I have a bottom line on my negatives, which can be made by pasting a narrow strip of paper, or drawing a clear line with a sharp knife on the base of the negative, and which serves as a guide for cutting away the edge of the print. Next cut your paper in strips, suiting the width of your negative, and just twice its length. Have a piece of smooth, thin, opaque paper, just the exact length of the negative, draw a vertical line on this in the centre; lay your paper, albumenized side out, on this mask, making the ends to meet at the line; now print first on one side and then on the other, taking care to have the base lines correspond; and when the print is made, cut the paper in the centre, and it is already matched, transposed, and ready to have the corners trimmed either round or square, and mounted.

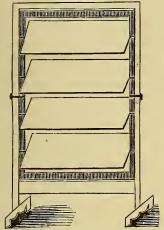
My silvering solution is simply plain silver, about forty grains strong, with four drops of concentrated ammonia to the quart, and when it gets the least out of order I just give it a good boiling, and bring it up to the proper strength. I find by experience that this is the simplest and most reliable of all silver solutions for paper. There is no foreign matter in it that will not come out by boiling. Let others try it and be satisfied.

E. P. LIBBY, Keokuk, Iowa.

### A USEFUL REFLECTOR.

THE reflector shown in the diagram requires but little description; its value can be seen at a glance. It combines the advantages

of both of the reflectors in common use, and can be used standing upright, with the re-



flectors set at any desired angle, or by closing all of the reflectors it can be used as a single reflector by swinging it on the middle frame.

PRINTING AT ROCHER'S STUDIO.

I SEND you the formulæ used here at Mr. Rocher's place, by myself.

S. & M. Dresden paper is floated one minute on a plain silver bath of nitrate of silver and pure water, forty-eight grains strong to the ounce of solution, and bath a little alkaline. Fumed five minutes. Wash in the usual manner, and tone in

### Toning Bath.

Chloride of Gold, . 6 grains. Make a little alkaline with saturated solution of Sal Soda.

Pure Water, . 75 ounces. Table Salt, . 280 grains.

Make up every night, a little while before use, say fifteen or twenty minutes, and tone to a bluish-purple state, and then fix in one part hyposulphite of soda to six parts water for fifteen minutes. To prevent blisters, place the prints after fixing in salt water for a few minutes, and then gradually reduce the density of the salt solution until it is near the density of the water in which the final washing is done. If prints on this very brilliant paper are subjected to different degrees of density and temperature while in the various solutions, blisters are invariably caused: but if care is exercised to reduce gradually the density of the salt water down to that of the final washing-water, the blisters which so often occur in the final washing will not appear.

CHARLES W. HEARN, Rocher's Studio, Chicago, Ill.

## HESLER'S PROCESS FOR SOLAR PRINTING BY DEVELOPMENT.

A. HESLER, Esq.

DEAR SIR: Would you, as a favor to one in the business, oblige me with your formula for making solar prints by the developing process; or, if published, inform me where I can find it? I have been advised by a gentleman who has known you for a number of years, that yours is an excellent formula, and he informs me that you would no doubt oblige me, and from the readiness with which you give the public the benefit of your ideas through the Philadelphia Photographer, I have no doubt that I shall hear favorably from you. I remain yours truly,
S. A. H.

YARMOUTH, N. S., June 22d, 1878.

As the above letter did not contain stamp for return postage, and as there may be others in want of the same information, I reply through your journal, presuming it will reach the party, as he claims to be one of your readers.

The inclosed formula is among the oldest published, and has often been placed before the readers of photographic publications. I believe there is none better, if properly worked, and will try to make the way to good results plain to those who wish to make enlargements easy.

## To Prepare Paper.

Skimmed Milk, . . ½ gallon, . 3 ounces. Acetic Acid, No. 8, . Stir and put it in a porcelain dish; bring to a boil, stirring all the time; strain out the curd through muslin (make Dutch cheese of this); take the serum, when cold, filter until clear. Now add

Iodide of Potassium, . . 16 grains, Bromide of Potassium.

To each ounce of the clear serum. Float your plain paper on this until it lays smooth; see that no bubbles or spots rest on the paper; dry with moderate heat; prepare the paper

in a room free from dust or actinic light, and if kept in a cool, dry atmosphere, it will keep in good working order a long time.

To use, float two minutes on a solution of

Silver,			640	grains.
Water,			16	ounces.
Acetic A	cid.		2	"

Draw the sheet off the silver solution over a glass rod. Having previously focussed your picture, place your paper, while damp, in position, and let on the light; print according to the density of the negative. A very hard negative requires printing until the detail is well out, and developed with a very weak developer; on the contrary, a very thin negative need not show any detail, and must have a stronger developer, which is prepared as follows:

This is for medium, or good for printing contact negatives. This class of negatives is what is required for making enlargements by development. For hard negatives, use less pyro; for weak, such as regular solar negatives, use more pyro. The old rule was to swab on both the iodizers, and the silver; but in that way you are pretty sure to get streaks and stains in about half or more of the prints you try.

In developing, lay the paper, face up, on a clean board, on which a clean piece of white bibulous paper is laid. Have the developer in a wide mouth bottle. Commence at one end, and apply enough with one sweep of the hand to completely cover the print; now watch it grow. If stains or fog occur, either you have overtimed, or allowed actinic light to get at the print, especially so if the picture pops out quick and then blackens all over. If it comes up slowly, and stains from this cause, add more citric acid. As soon as developed, plunge in clean water, and from that to the hypo, for clearing, of usual strength; then wash as usual. Thick paper needs longer and stronger cleaning than thin. If the print comes up too flat in developing, add a little acid silver solution to the pyro.

A. HESLER, Evanston, Ill.

## THOUGHTS FROM THE ALMANACS.

No. 4.

(Continued from page 185.)

H OW is the Dejection Treg OW is the Defective Negative to be Remefriend Mr. W. R. Harrison, the Paris correspondent of the British Journal of Photography, and to his entire satisfaction, the method I adopt to conquer all the difficulties of this case (or of clichés too much intensified or undertimed), and eschewing retouching with brush or pencil on the film, risking the further deterioration of the negative. I make light finish the task it has, from want of time or bad quality, insufficiently done, and in such a manner that no hand can hope to rival its delicacy and precision, and this is the only plan that a lover of his calling can justifiably pursue. A cliché produced under the conditions before made will present the high-lights of the face, the light parts of the costume, white lace, white lace collars, sleeves, etc., in violent contrast with the darkly shadowed parts of the face, under the eyebrows, under the chin, portions of the hair, dress, and accessories.

"I take the negative and place in contact with the collodion film a sheet of thin, yellow-colored tracing-paper the size of the plate. This I rest against the glass square of the window, so as to cause the light to traverse the two. I then sketch with a pencil the outline of all those parts which are too strongly intensified on the negative and require tinting. I then remove the tracingpaper and cut out with the fine point of a knife the pencilled parts corresponding to the dark parts of the cliché; and I lay down in the printing frame this tracing, which may be called the tinting-paper, and cover it with a sheet of sensitized paper, and expose to diffused light. It is here that the judgment of the printer is brought into operation, for some of the apertures will require more or less exposure to rectify the defects of the negative, and which should be covered up with any non-actinic substance until the whole of the uncovered portions of the sensitive paper have acquired the necessary tint, the yellow-colored tracing-paper preserving the rest from the action of light.

Some of the outlines of the tinted portions may be lightly pencilled on the back, to facilitate the adjustment of the sensitive paper to the negative in the printing-frame, the shutters of which are then closed, and the whole is exposed to the light until the print has acquired the necessary force, when it will be found that the tinted parts have now all the details of the photographic image in a most surprising manner, not otherwise obtained. It is if those parts previously exposed had been rendered more sensible from some contaminating action; there are no lines nor overlapping, but the image is beautifully modelled, and the first tinting disappears in the production of a complete picture, the agreeable result invariably obtained when the operation has been carefully executed by any person worthy of the name of a photographic artist."-ADAM SALOMON, Paris.

How to Mount in an Album without Cockting.—" Let the photograph be ironed with a hot iron on the back till it is nice and smooth, then place it under pressure till quite flat. A large book answers the purpose admirably.

"To prepare for mounting, lay the flattened print face downwards on a smooth board or piece of glass, and upon it place a piece of clean, stiff paper an eighth of an inch less all round than the photograph, upon the exposed edge of which rapidly and sparely brush some liquid glue (as little as possible) to cover it, for herein lies the great secret. Avoid making the paper wet.

"The album being conveniently placed—the position the photograph is to occupy being previously marked with a pencil—carefully raise the photograph with a point of some kind to avoid soiling the finger with the glued edge, making it non-adhesive in the parts where such glue would be removed, and lay it down in the proper place. At once lay a piece of clean paper over it, and rub it down firmly with a soft rag; close the book. In half an hour the face will be dry, and the print perfectly flat, and it will remain so.

Gihon's Photographic Colorists' Guide is only \$1.50. Best of its kind.

## SCIENCE FOR THE STUDIO.

CLEANING OLD ENGRAVINGS.—A correspondent of the *Chemist and Druggist* says upon the subject: A correspondent from Wells recommends cold water, care, and common sense, with a warning not to use destructive chemicals.

No one who values an engraving will try a chemical receipt until plain remedies have been essayed. I have cleaned a set of seven hundred and sixty manuscripts, more or less illegible, in the following manner: A large German sitz bath is made perfectly clean; half filled with water filtered through a carbon filter. The manuscript is floated on the water, face downwards, for twenty-four hours, the color obtained being sufficient evidence as to what has taken place. The manuscript is lifted out of the water by a large, perfectly clean sheet of windowglass being passed underneath; after being drained it is transferred to a sheet of white blotting-paper, never being touched by the hand. When thus the first dampness has been removed, it is transferred to fresh blotting-paper, dried, and ironed in the usual way. This plan will serve in the case of nine engravings out of ten, excepting always that before ironing, the engraving is finished off, bread crumbs applied by a circular motion of the hands, as practiced in the art schools.

This plan, with regard to ancient stains, mildew, and grease spots, is ineffective, and recourse must be had to other means.

I have received this extract:

"Removing Mildew Stains.—The most successful method is to immerse each mildewed sheet separately in a solution made in the proportions of half a pound of chloride of lime to a pint of water. Let it stand, with frequent stirring, for twenty-four hours, and then strain through muslin, and finally add a quart of water. Mildew and other stains will be found to disappear very quickly, and the sheets must then be passed separately through clear water, or the chloride of lime, if left in the paper, will cause it to rot. Old prints, engravings, and every description of printed matter, may be successfully treated in the same manner."

The objection to this method is that an unnatural whiteness is effected, which in

printed matter is of no consequence, but seriously interferes with the beauty of a line engraving.

He quotes from one of his correspondents thus:

"I am a great admirer of old engravings, and collect them, particularly old portraits, and have in my time cleaned many hundreds. The plan which I adopt is as follows: I place them, one or two at a time, in a shallow dish, and pour water over them until they are completely soaked or saturated with it. I then carefully pour off the water, and pour on the prints a solution of chloride of lime (one part liq. calcis chlorate, B. P., to thirty-nine parts of water). As a general rule, the stains disappear as if by magic, but occasionally they are obstinate. When this is the case, I pour on the spot pure liq. calcis chlorate, and if that does not succeed, I add a little acid nitro-hydrochlor, dil. I have never had a print which has not succumbed to this treatment, in fact, as a rule, they become too white. As soon as they are clean, they must be carefully washed with successive portions of water, until the whole of the chlorine is got rid of. They should then be placed in a very weak solution of isinglass or glue, and many collectors color this solution with coffee-grounds, etc., to give a yellow tint to the print. They should be dried between folds of blotting-paper either in a press or under a heavy book, and finally ironed with an ordinary flat-iron to restore the glass, etc. (Place clean paper between the iron and the print.)"

The Apothek Zeitung gives some useful hints in regard to the

Removal of Stains.—The stains easiest to remove are those of sugar, gelatin, blood, and albumen; a simple washing with water is all that is necessary for all kinds of fabrics. Grease spots. For white linen or cotton goods, use soap or weak lye; for colored calicoes, warm soapsuds; for woollens, soapsuds or ammonia; for silks, benzine, ether, ammonia, magnesia, chalk, yolk of egg, with water. Paints, varnishes, etc. Chloroform. Rust and ink. White cottons and linens, warm solution of oxalicacid; colored cottons and woollens, repeated washings with a solution of citric acid, if the color is fast;

silks, do nothing; all attempts only make things worse. Acids, vinegar, orange-juice, etc. White cottons and linens, wash with pure water, or warm chlorine water; colored goods and silks, ammonia diluted according to the fineness of the tissue, and the delicacy of the color. Tar, axle-grease. White cottons and linens, soap, oil of turpentine and water, each applied in turns; colored cottons and woollens, first smear with lard, rub with soap and water, and let it stand for a short time; then wash with oil of turpentine and water alternately; silks, the same, using benzine instead of turpentine, and dropping the water from a certain height on the under side of the stain; avoid rubbing. Wine and fruit stains. White cotton or linen, fumes of burning sulphur, warm chlorin water; colored cottons and woollens, wash with tepid soapsuds or ammonia; silks, the same, with very gentle rubbing.

Colors for Backs of Books.—A late paper says: Brown and black are the only fast colors in bookbinding cloth. Red, green, and blue are the next nearest to fast colors. In calf-binding, yellow or tan is the only color that will not fade; it wears best. Blue calf wears and rubs white. Purple and wine colors fade very quickly if exposed to light. Claret is greatly superior to the last named, and is nearly fast.

To DISINFECT ROOMS.—The disinfection of a room is not complete unless the walls have been thoroughly cleansed. If they are papered, the paper must be removed, and the surface beneath carefully scraped and washed. If the walls are painted they should be washed with caustic soda. The ceiling should also be subjected to a similar treatment.

OLD vs. NEW CHEMICAL NOTATION.—A great discussion, occupying several sessions, took place some time since at the Paris Academy of Sciences between the representatives of the atomic notation and the partisans of the notation by equivalents. The former school was argued for by Professor Würtz, of the Ecole de Medecine, and the latter by the eminent chemist Henri St. Claire Deville. On all counts the equivalent school has the best of it in this discussion, as it admits no hypothesis; whereas

the atomic notation is based upon a double hypothesis, viz., that bodies are formed of atoms, and that equal volumes of gases or vapors contain an equal number of molecules. St. Claire Deville and Berthelot accuse the partisans of the atomic notation of having introduced a considerable amount of indecision and awkwardness into science to serve no purpose except that of upholding a useless hypothesis.

NEW METHOD OF TESTING DRINKING WATER.—In the last session of the "Deutsche Gesellschaft für öffentliche Gesundhertspflege," Dr. Falk described a new method of testing the purity of drinking water by electrical experiment. From researches carried on in the laboratory of the School of Artillery in Berlin, it appears that the conductive properties of water for the electric current vary rapidly, according to its degree of purity, the resistance decreasing with the purity of the water. It is possible, it is said, in this manner to detect with great ease the presence of small quantities of organic matter in water.

PHOSPHATE OF SODA IN SOAP.—A new soap has been patented in Germany which is composed of common soap with the addition of phosphate of soda. It is said to have especially good cleansing qualities, and to be adapted for use in salt as well as fresh water.

To Utilize Gutta-Percha Scraps.—Scraps of gutta-percha tissue may be made to serve a good purpose by dissolving them in commercial benzole, and adding some vermilion or other pigment. When this solution is applied to the necks and stoppers of bottles, a tight-fitting capsule is formed, which is impervious to air, moisture, alcohol, and acids, and may be torn off in a moment when desired.

A HOME-MADE TELEPHONE.—Mr. William S. Stephen (Yonkers, N. Y.), in answer to a query relating to the above, writes that instruments of the kind are plentiful in Yonkers, and gives the following direction to construct them: "Take a tomato can, remove both ends, and over one end stretch either parchment or bladder; then procure a cord of the required length,

waxed linen fish-lines are the best, pierce the bladder in the centre, and pass the cord through it, making a knot on the end. Arrange the other end of the cord in the same manner, stretch it tight, and you have a telephone. We have them here from ten yards to two miles long, and they work well. The police use them over a mile each way from their headquarters. They generally mount the can in a cigar box, so as to nail it down." Try it from your gallery to your house.

THE following is said to be the composition of the government postage-stamp mucilage:

Dextrin, . . . 2 ounces.
Acetic Acid, . . 1 ounce.
Water, . . . 5 ounces.
Alcohol . . . 1 onnee.

Add the alcohol to the other ingredients when the dextrin is completely dissolved.

To Separate Iodide from Bromide of Potassium, treat the mixture by acetic ether, which dissolves only the bromide and leaves the iodide undissolved. The test is said to be accurate for qualitative as well as for quantitative analysis.

To DETECT ALCOHOL IN ESSENTIAL OILS, the addition of a small crystal of anilin red is recommended. The presence of alcohol is manifested by the red color developed in the mixture. The process is not quite new.

To Break off the Bottom of a Bottle.—The bottle is inserted in a shallow vessel of cold water, so as to be immersed just up to the line to be fractured, and is filled nearly to the same line with water; then a sufficiency of sulphuric acid is poured in to suddenly raise the temperature on the inside, and the bottom generally drops out. The edges at the point of fracture must, of course, be smoothed off with a file or a sand-stone.

### SILVERING SOLUTION .-

Cyanide of Potassium, . . 2 ounces.

Nitrate of Silver sufficient, or . 1 ounce.

Distilled Water, . . . 12 ounces.

Precipitated Chalk, . . . 2 ounces.

Dissolve the cyanide in the water, and add to it a concentrated solution of nitrate of silver as long as the precipitate formed at first is redissolved. Lastly, mix in the chalk. The liquid is applied with a soft bit of linen, the piece when silvered is well washed with water, and the surface dried and gently polished with chamois leather.

GILDING SOLUTION.—Proceed as with the silvering solution, substituting chloride of gold for nitrate of silver, and apply in the same manner. It is scarcely necessary to add that the metallic films thus deposited are extremely thin, and that the results are much inferior to those obtained with a galvanic battery.

BICHROMATE OF POTASH.—M. Lanjorrois calls attention to the antiseptic properties of this salt, which appear to be greater than was hitherto supposed. The addition of one per cent. to ordinary water will render it capable of preserving organic substances immersed from all decomposition, even though the solution be exposed to the free contact of the atmosphere. One per cent. is quite sufficient to give a decided tint to water, hence its antiseptic powers seem on a footing with its power of coloration.

### BIBLIOGRAPHIC.

WE have received from Mons. A. Liebert, 6 Rue de Londres, Paris, author and publisher, a copy of the third edition of his excellent manual of photography entitled La Photographie en Amerique. Many authors when issuing revised editions of their works, feel called upon to curtail them somewhat. This has not been the case with Mons. Liebert. Photographic practice continually brings forth so many things that are new and useful, that one who now attempts to publish a complete treatise thereon must always go beyond what has previously been done by his compeers.

As Mons. Liebert states in his preface, however, while he informs us most fully on what is practical and most useful in general photographic manipulations, others having so fully done that share of the work already, he devotes himself more particularly to the explanation of new processes, and to instructions in the principles of art as they are of service to the photographer. As a verification of this, M. Liebert accompanies his

work by no less than eighteen photographic impressions, illustrative of various processes and of methods of working. The first is a portrait of himself (which we are particularly glad to get), by Woodbury's photogravure process. Following this are twelve cartes de visite from handsomely retouched negatives of gentlemen, ladies, and children, illustrating various methods of lighting and posing; and on the backs of the cards are drawings of M. Liebert's skylight, screens, curtains, etc., arranged as they were when the portrait was taken, on the plan adopted by Mr. Bigelow in his excellent Album of Lighting and Posing. Next we have two portraits of a lady to illustrate retouching the negative; the one being untouched, the other from the retouched negative. After these come two prints by the carbon process, and a photo-zincographic copy from an oil painting.

The whole grand work contains six hundred and seventy-nine pages, swollen to that number by the publication of the then most recent discovery in the art, which came to light after the rest of the work was printed, and which M. Liebert honors with an appendix.

We translate this portion of the work as an example of the thoroughness of the whole, commending it all to those who can read it.

MICHAUD'S HELIO-ENGRAVING PROCESS.

"A bichromatized gelatin print having been made by the ordinary methods, and developed on a metallic plate, if it is applied to an alloy contained in a dish, and which has been easily liquefied by heat, the degrees of which may vary from 140° to 260° Fahr., and if afterwards it is exposed to the action of a simple press, we obtain, in cooling, an intaglio plate, if the primitive cliché was a photographic negative.

"The alloy, fusible at a low temperature, used for obtaining the impressions, has strictly no determined proportions; that formed of one thousand parts of Darcet's alloy and one hundred and ten parts of mercury will generally answer the purpose; but these proportions should vary in certain cases according to the hardness to be given to the plate that is to be immediately obtained.

"The plates bearing the developed gelatinous prints are dried in the open air; but they should then be placed in a box shut at the bottom by damp bibulous paper, isolated by a few glass strips so as to maintain them in a hygrometric medium, which very slightly swells the gelatin; the gelatin is then covered with plumbago by means of a moderately soft brush, and immediately applied on the liquid alloy.

"The prints obtained by the exposure of bichromatized gelatin are of two kinds. If the photographic cliché consists of a reproduction of lines, it is used such as it is, reversed, or not, at will. If on the contrary, it is a photographic cliché from nature, or from any artistic drawing, reversed or not, this cliché is first covered with a pellicle, without thickness, giving the necessary printing grain, which will be transmitted by exposure to the gelatin print, and finally to the metallic plate used in the printing.

"To obtain the printing grain, it is necessary to expose under a glass plate uniformly covered with any opaque powder, a sheet of colored and bichromatized pigment paper, which sheet is then applied, in water, to the cliché, covered with a coating of gum arabic at ten per cent. of water, to which has been added forty-five grains of bichromate of potash for each quart of solution; then developed in tepid water, which carries off the unexposed gelatin, leaving untouched the soluble portions which form the grain in question.

"To obtain engraved galvanic plates, regular, good, and economical, the ordinary simple pile is used, modified as follows:

"The copper solution is contained in a rectangular wooden tank, varnished on the outside, and covered on the inside with a resisting mixture of wax, rosin, red ochre, and tale; it is in this solution that are the new rectangular porous diaphragms, of which we give, further on, the description, and which furnish the electric current.

"These diaphragms consist of two simple plates, with marginal nervures of porous earth, and of variable thickness and size. The two plates fit into a mounting of guttapercha, or of wood covered with a resisting varnish, or of these two substances combined, or, finally, of any other solid substance.

"It is in these diaphragms, that are suspended from a longitudinal support the sheets of zinc which plunge into the acidulated water contained in them, the galvanic action is produced, and acts in the ordinary manner.

"The advantages of these porous, rectangular vessels are evident. They may be resumed thus:

"First. They can replace nearly all the diaphragms known up to the present time, whether used with piles of one or two liquids.

"Second. They may be made of varied dimensions and very large, as the manufacture of porous plates does not present any serious difficulty.

"Third. Consequently, the quantity of electricity may be easily obtained, and as needed; for the sheet of zinc may not only be larger or smaller, but used also from its two surfaces.

"Fourth. These diaphragms accommodate themselves to all liquids, and should not be compared with the *organic membranes*, which cannot be industrially used.

"Fifth. The rectangular form has the advantage, in the simple pile, of furnishing a deposit which is obtained in a parallel and uniform manner.

"Sixth. These diaphragms are cheaply made, easily kept in order and repaired.

"Seventh. Finally, by means of a glass siphon, fixed or movable, it is easy to renew in a continuous manner the exciting liquid contained in them, and obtain a long, constant, and regular action.

"In regard to the inscription plates, destined to take the place of ordinary engraved plates, they may also be obtained by using bitumen in solution instead of gelatin, and then the cliché is used in its natural condition. After sufficient exposure to the sun, clear in essence of turpentine, wash thoroughly in water, and plunge into a galvanic bath, which can vary at will, according to the metal dissolved in it. The exposed bitumen is now got rid of, and finally, the plate is plunged for a moment in a solution of ammoniacal carbonate of copper; or, if the lines of the plates are to be deeper, they may be allowed to remain for a few moments

in a slightly acid solution of a copper salt, before producing the reaction of the abovementioned ammoniacal salt upon the *brass* plate which carries the design."

## GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 8.

Printing, comprising items of information in relation to every class of work. Plain and Albumen, Porcelain and Carbon Work, are all treated of in this series.

WHILST heading this article, I have promised too much; I cannot possibly do full justice to every specified item within the limited space allotted to me each month. I shall only treat of that which is most important, and endeavor to be entirely practical. The theory of silver printing can be very concisely stated as follows:

"When nitrate of silver is brought in contact with an organic substance, the resulting compound is found to be affected by light in a somewhat peculiar way: the compound slowly darkens to a reddish tint; the exact chemical reaction that takes place is very complex to trace, but it may be accepted that an oxide of the organic matter and silver is formed. This oxide is stable, unlike the suboxide of silver, and is not acted on by fixing agents to any great extent.

"The most important of the organic substances used in printing is albumen. It has been used hitherto in preference to any other organic compound, on account of the delicate film it forms on the paper, free from all roughness, and also on account of the beautiful color the print takes by the production of the albuminate of silver. The albumen should be used fresh, and in a slightly alkaline condition. The principal commercial objection to its employment in such a condition as the foundation of the picture, arises from the difficulty that is experienced in coating the paper evenly with Makers of paper prefer old albumen, which gives a slightly acid reaction. When in this last condition, the paper is easily coated, though the toning is retarded, and inferior pictures are the result.

"There are two kinds of paper used prin-

cipally for albumenizing; Rives and Saxe. They are both starch-sized papers. The latter is much more porous, and consequently, less glossy than the former. Rives paper is, however, tender when wet, and tears easily when used in large pieces, such as required for large prints. Saxe, therefore, is preferred for large prints, whilst the Rives is admirably adapted for *small* pictures where great gloss is requisite.

"The 'sensitizing bath' has been a subject of dire tribulation among inexperienced photographers, or those who seem unwilling or incapacitated to receive instruction. The subjoined formula was introduced and recommended to 'photographers by Mr. H. O'Neil, of New York, and has been repeatedly copied and indorsed. It leaves nothing to be desired.

"Silver solution, 35 grs. strong, ½ gallon.

Muriatic Acid, . . ½ ounce.

"Shake well, and add enough ammonia to make it slightly alkaline; shake well, filter, and use the filter over and over again. Every time you strengthen, add a little acid and ammonia. Add a little C. P. nitric acid when red tear-drops appear. Fume with strong ammonia eight or ten minutes.

"The method of floating the paper surely needs no particular description. It is by no means imperative that a certain corner should be first approached to the solution. The photographer soon acquires peculiarities of manipulation that enable him to do his work better and with more satisfaction to himself, than if he followed a prescribed rule. There is one general principle to be observed. It is, that if the negatives are very hard the strength of the silver solution can be lessened, and that if they are weak, it should be much increased.

"After removal from the silver solution, the paper is allowed to become thoroughly dry, and is subjected to the fumes of strong ammonia. It is then ready, when cut into the required sizes, to be placed in contact with negatives in printing frames.

"The print should have the highest lights nearly white, and the shadows verging on a bronzed color, before toning.

"Small white spots, with a black central pin-point, are often met with in prints.

Dust on the paper, during sensitizing, will cause them, the dirt forming a nucleus for a minute bubble. All paper should be thoroughly dusted before being floated on the sensitizing bath.

"Gray, star-like spots, arise from small particles of inorganic matter, such as oxide of iron, lime, etc., which are present in the paper. They become more apparent by decomposition during the printing operations. They may generally be discernible by examining the paper by transmitted light.

"Bronzed lines (straight) occur through a stoppage during floating the paper in the sensitizing solution. Should the lines be irregular, forming angles and curves, it is probable that a scum of oxide of silver, etc., may be detected on the surface of the sensitizing solution. A strip of blotting-paper drawn across the bath will remove the cause of the defect.

"Should the print appear marbled, it may be surmised that the sensitizing solution is weak, or that the paper has not been floated long enough. In some cases it may arise from imperfect albumenizing, but, in ordinary commercial samples, the cause can be easily traced."

"The object of 'toning' a print is to change the reduced silver salt to a sightly color that will not be destroyed, after it has been immersed in the fixing-bath. action of toning may be considered somewhat analogous to that of intensifying the negative, by change of color; the reduction of metallic gold, from the chlorine on certain portions of the print, being similar to that of the metallic silver from the nitrate. The position of the portion of the picture on to which it is thrown down is determined by the position of the reduced silver on the paper. Where there is metallic silver, there the metallic gold is thrown down. process might be almost called 'electro-gilding.' The terchloride of gold, or a double salt of the terchloride of gold and potassium or sodium, is invariably used for the toning-· bath, as it is necessary that the electro-gilding action should take place with a salt of gold in solution. It is also found advantageous that the solution should be neutral, i. e., neither acid nor alkaline, the reduction

taking place more rapidly than with an acid solution. The deposition of gold is further aided by the addition of an acetate or carbonate of an alkali, to form oxychloride of gold. When the terchloride of gold alone is reduced, chlorine is liberated, which attacks the silver in the print, forming fresh chloride of silver. That this action does occur may be shown by the diminished depth of color the prints assume in the toningbath. The formation of an oxychloride of gold in the solution, however, somewhat reduces this change, a larger deposit of gold being thrown down in a shorter time than if the addition of the carbonate had been omitted.

"The list of well known and much used toning-baths could be made to be a very long one. They resemble each other more or less in character. There is one for which the following excellencies are claimed: Beauty and permanency of tone; simplicity of formula; great economy; certainty and regularity.

"The bath is made as follows: Always keep in stock the following solutions.

"Solution No. 1.—Dissolve a quarter of a drachm of chloride of gold in fifteen ounces of water.

"Solution No. 2.—Dissolve a quarter of a pound of acetate of soda in forty-eight ounces of water.

"To make the bath, take of water, thirty ounces; then add solution No. 1, three ounces; and next add solution No. 2, three ounces. Let stand a whole week before using; if wanted sooner, make it with hot water.

"This bath will tone day after day until at least four sheets have been toned, and when apparently exhausted, throw away six or ten ounces of it, and add a similar quantity of fresh bath, made according to the same formula, taking care its age is not less than one week, as the acetate bath goes on improving, and if used too new, would tone unevenly, and the prints would lack that brilliancy so easily obtained when the bath is of the proper age.

"Always take the prints out when of a purplish brown, but never at the rusty brown stage.

"If the washing has been carefully done,

you will find that nearly all of the batch will be finished about the same time, vignetted portraits first, and then the plain portraits, which latter always take up a larger proportion of gold.

"When the toning is finished, pour your bath back into the jug or bottle, and keep the same for next time. Should there be a slight deposit of chloride at the bottom, decant carefully, so as not to disturb it; this will save all filterings, which are always better avoided.

"As a rule, the following will answer: Tone the prints as you wish them to be when done."

"According to the minuteness of the grains of gold, so will it assume, by reflected light, colors varying from purple to that of the ordinary yellow. The organo-chloride of silver appears through this layer of gold, and the colors of the two mingling together give the different tones in ordinary prints. When a print is overtoned it becomes blue; this is due to the greater amount of gold deposited over the surface of the silver. The change in color, on the immersion of a print in the fixing-bath, is due to the solubility of the chloride of silver."

"Hyposulphite of soda is almost invariably used for fixing. A strong fixing-bath is recommended, on the grounds that a double hyposulphite of soda and silver is formed, and that this double salt is soluble in hyposulphite of soda. Consequently, if enough hyposulphite of soda be added only to form the double salt in the paper, the fixing is imperfect; whilst an excess of hyposulphite will dissolve it out of the paper, and leave the print amenable to washing. On these grounds the strength of the fixing-bath has been made as follows:

"Hyposulphite of Soda, . 4 ounces.
Water, . . . 1 pint.

["Mem.—One ounce of hyposulphite of soda will fix with safety three sheets of paper.]

"Between toning and fixing, it is well to wash the prints slightly. After taking them out of the toning-bath they should be placed in a dish of water, face downwards, till a bath is ready for fixing.

"It will be noticed that the toning action

on the print continues during this washing, presumably by the solution of gold contained in the pores of the paper continuing to deposit. The addition of a small quantity of common salt has been found useful to stop this action. If this precaution be not taken, the prints first toned should be left redder than it is intended they should remain.

"The prints should be immersed in the fixing-bath for twelve or fifteen minutes. The solution should be kept in motion during the whole time of fixing, as for toning. Care should be taken to brush off all bubbles that may cling to their surfaces, as the cushion of air impedes the access of the liquid to the silver salt.

"When the prints are fixed they will appear colorless in the whites, and free from red patches in the dark portions.

"In some establishments, it has been found advantageous to add a drachm of ammonia to each pint of fixing solution. The ammonia aids the rapidity of fixing; it also attacks the size of the paper, dissolving it out from the paper in a great measure. This renders the washing more perfect, and is found to prevent 'blistering,' which is common with so many albumenized papers.

"The prints should be withdrawn slowly from the bath, in order that all excess of the hyposulphite solution may be drawn from them by capillary attraction, and placed in a trough of water. The methods of eliminating the soda, or of washing the prints, must depend upon the resources of the photographer."

"Prints on plain paper are useful in certain instances. The formula for preparation is given:

"Chloride of Ammonium, . 60 to 80 grs.
Citrate of Soda, . . 100 grains.
Chloride of Sodium, . . 20 to 30 grs.
Distilled Water, . . 10 ounces.
Gelatin, . . . . 10 grains.
Or,

"Chloride of Ammonium, . 100 grains.
Gelatin, . . . . 10 "
Water. . . . . 10 ounces.

"The gelatin is first dissolved in hot water, and the remaining components of the formulæ are added; it is then filtered, and the paper is floated for three minutes. If it be required to print on plain paper in a hurry, a wash of citric acid and water (one grain to the ounce) may be brushed over the back of ordinary albumenized paper, and, when dried, the back of the paper may be sensitized and printed in the ordinary manner. For cold tones, the wash of the citric acid may be omitted."

Porcelain printing has been more extensively and successfully practiced in the United States than in any other country. Lately, however, the production of these pictures has been somewhat on the decline, owing primarily to the difficulty in procuring the plates for the purpose, and again, to the growing conviction among photographers that they are unstable in character, and notwithstanding the care used in their manufacture, the period of their so-called permanency is exceedingly uncertain. A most excellent formula has already been given in a previous series of 'scraps' for the preparation of the collodio-chloride. method of use is simple, extreme care and cleanliness being the most important requirements for success.

The porcelain plates are readily cleansed with a solution of cyanide of potassium. After thorough washing, they are albumenized with a solution, one part of albumen to four parts of water. This should be flowed over the plates two or three times. When dry, they are ready for sensitizing. This is accomplished by flowing the porcelain with collodio-chloride, as one would coat a plate for negative purposes. This must be done in the dark-room. The plate, while still moist, is suspended in the fuming-box for two or three minutes, and then dried with a gentle heat.

"Special frames are supplied by the stock-dealers, for holding the porcelain in its place against the negative during the time of making the impression. The toning, fixing, and washing are to be conducted on the principles which govern the making of paper prints. The solutions, however, are to be used very much weaker than in the latter case. Fifteen minutes' washing under a moderate stream of running water will be found sufficient. There are few peculiarities

of manipulation to be observed, and even these will suggest themselves with some practice of the art."

"Permanent Pigment Printing.—If gelatin be mixed with a solution of chromic acid, and dried in non-actinic light, it will be found that it is perfectly soluble in water. If, however, it be exposed to the action of light, it will be found to have become insoluble. On this rests the whole superstructure of permanent pigment printing, photo-lithography, heliotypy, and processes akin to them. We will describe that which is known as the 'autotype.'

"The manufacture of the pigmented sheets of paper upon which the pictures are printed, is controlled by parties holding protective patents. The pigment consists of gelatin, sugar, soap, and colors of every tint. These are the foundation of all their permanent prints.

"The tissue is sensitized by floating it on a solution of bichromate of potash and water.

"Pure Bichromate of Potash, 1 ounce.
Water, . . . . 20 ounces.

"The bichromate of potash should be nearly neutral, and contain no free acid. A dish somewhat larger than the paper to be floated is used. The solution should be at least a quarter of an inch in depth in the dish. The piece of pigmented paper is taken, and a quarter of an inch folded back at one end at right angles, and rolled up to a diameter of about two to three inches, gelatin surface outside. The turned-up end remains on the outside of the roll. angle of the folded end is now dropped upon the solution, and the coil of paper is allowed to unfold itself, driving out all bubbles behind as its surface comes in contact with the solution.

"The floating should last from two minutes in warm weather to three in cold. The turned-up end should then be pinned by a couple of pins on a thin lath, and slowly withdrawn from the back and hung up to dry.

"The drying of the tissue should take place in a room perfectly free from vapors. If possible, a current of warm, dry air should be created through the drying-room. The quicker the paper dries the better it will work, though the less sensitive it is to light.

"When quite dry, the paper is exposed under the negative in the ordinary manner, a 'safe edge,' as it is technically termed, being placed around it. The safe edge consists of a mask of brown or other non-actinic paper, externally larger than the negative, and internally, slightly smaller, the negative being, as it were, framed by it. The pigmented paper must be slightly larger (say half an inch each way) than the size of the print required. If the print be examined during exposure it will be seen that, owing to the colors added, there is no change in its appearance; consequently it is necessary to use a 'photometer' to time the exposure. Considerable judgment must be used, governed by the density of the negatives to be printed from. Practice, and not directions, is here essential. When fully exposed, the tissue is withdrawn from the frame in a room in which the light is weak or non-actinic. Close at hand, on a table, should be a dish containing water to a depth of an inch or more. To the bottom of this is sunk a finely mulled flat zinc plate, at least one inch larger each way than the negative; the paper is now drawn, face downwards, under the water, till it nearly rests upon the zinc plate. It will be noticed that paper at first tends to coil downwards, but gradually unrolls till it is perfectly flat, and if left, would coil upwards. At the moment it has become flat, the zinc plate is seized by the hands, and raised horizontally from the dish, the tissue resting upon it. It is then placed on a low stool standing in another dish; one end of the paper is next pressed on to the zinc plate by one hand, and with the other the remaining portions are brought into contact with the 'squeegee.'

"The zinc plates are termed the 'temporary supports' of the tissue. They are mulled in the ordinary manner, with a muller and fine sand; the finer the grain given, the finer in detail will be the resulting pictures. They are also coated with a fatty and resinous substance, as follows: Take a piece of fine flannel, and with it rub on the plate a small quantity of this composition,

"Beeswax, . . . 3 drachms.
Yellow Resin, . . 3 "
Oil of Turpentine, . . 1 pint.

With another piece polish off the excess of grease, leaving but a minute layer of it.

"The zinc plates are cleaned, after use, by rubbing with flannel in boiling water. A little turpentine or ammonia may also be needed.

"Development is best effected by a trough or tin basin containing water, whose temperature can be maintained at one hundred degrees Fahr. by aid of a gas-jet or spiritlamp. After the pigmented paper has been placed into contact by the squeegee with the zinc plate, it should be laid aside for a couple of minutes to allow the gelatin to swell. By the swelling of the gelatin a partial vacuum is created between it and the zinc plate, and the pressure of the air outside prevents it from peeling or stripping off. The zinc plate, with the adhering paper, is next placed horizontally in the trough for a minute, when it will be found that the paper can be peeled off, leaving the gelatin pigment on the zinc plate. The plate is now moved vertically in the water, and gradually those parts of the gelatin which have been unacted upon by light will dissolve away, leaving the picture beautifully developed. When the water flows from the plate free from coloring matter, it should be withdrawn and placed for a few seconds in alum and water (a dessert spoonful of alum to a couple of gallons); this renders the remaining gelatin perfectly insoluble. The plate with the picture on it should be well washed and set in a rack to dry.

"The print will be found reversed. The retransfer brings it into position. The transfer paper is coated with a preparation of insoluble gelatin. The retransfer on to paper is effected in a similar manner to the transfer of the pigmented paper to the zinc. The paper is plunged into water of a temperature of one hundred and seventy degrees, where it remains till it becomes slimy to the touch. The plate bearing the dried picture is now dipped into cold water, and carries as much as possible away with it in a horizontal position on to the stool. The transfer paper is then placed, prepared side down, upon the cushion of water, and 'squeezed' as before. It is then allowed to dry spontaneously (in the sun if possible), after which it will be

found to readily leave the plate, bearing with it the picture on its surface.

"If a mat surface be required, the print may be finished by rubbing it with cottonwool holding a little turpentine. A brilliant surface can be given by using an encaustic paste as for silver prints:

"White Wax, . . . 1 ounce.

Benzole, . . . 1 "
Or,

"White Wax, . . . 1 ounce.
Oil of Turpentine, . 1 "

Dissolved by the aid of heat.

"Carbon prints can be produced by transferring them direct to the paper on which they are to finally rest. The method, however, necessitates a reversed negative, and that is the great drawback to the general use of the process."

(To be continued.)

## OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E. (Continued from page 199.)

SELENIUM (atomic weight, 79.5; symbol, Se). Selenium was discovered by Berzelius in 1817, and by him named. (Selenium is a mythological name, coming from a Greek word meaning the moon.) It is a quite rare substance, very much resembling sulphur. It has several allotropic forms. It burns, giving off fumes smelling like rotten cabbage. It forms several oxides and acids, which are not of enough importance (on account of rarity) to be mentioned here.

TELLURIUM (atomic weight, 129; symbol, Te). A still rarer substance than the preceding. It was discovered in 1782 by Müller, and named by him (from a Latin word meaning the earth). It is frequently classed with the metals, but its striking resemblance to sulphur and selenium seem to indicate that it should come under the head of non-metals. It forms several oxides, acids, and other salts, which are not of importance enough to be mentioned here.

Sulphur, selenium, and tellurium resemble each other in very many particulars, in regard to their action when heated, when burning, in combination with other elements,

etc. The atomic weight of sulphur is 32, of tellurium 129, and of selenium 79 5, not very far from a mean between the other two. The specific gravity of the first is 2, of the third 6.25, and of the second 4.5, nearly a mean. Indeed, all the characteristics seem to unite to make a very clearly marked class of these three substances.

Pноsрновия (atomic weight, 31; symbol, P). A quite important substance, never found in nature in the free state. It was discovered by Brand, of Hamburg, in 1669. It is a soft, wax-like, semitransparent, whitish substance, becoming hard and brittle at low temperatures. It is very inflammable, taking fire in the air very easily (especially if it contains impurities). When exposed to the air it slowly combines with oxygen, giving off white fumes, which, in a darkened room, show phosphorescent, pale-greenish light, hence its name (phosphorus being derived from two Greek words, meaning light producing). It melts at 111° Fahr., forming a transparent liquid, boiling at 554°. It is not soluble in alcohol, ether, or water, but slightly so in oils, and quite soluble in carbon disulphide. On account of its inflammability when exposed to the air, the least amount of friction often being sufficient to ignite it, it should always be kept and cut under water. A remarkable characteristic of phosphorus is the variety of forms it may exist in. The transparent variety has already been mentioned; when exposed to light under water it becomes white and less fusible. When melted phosphorus is suddenly cooled, a black and opaque variety is produced; or by heating near to its boiling-point, and suddenly cooling, a viscous variety is produced; and if exposed to a temperature of about 460° in a gas which cannot affect the phosphorus chemically, a fifth modification, called red, or amorphous, phosphorous is formed. This form differs very much from the transparent variety. It is insoluble in carbon bisulphide. It omits no odor when exposed to the air, and does not take fire until heated to about 500°. Phosphorus acts as a very powerful irritant poison when taken internally.

But two oxides of phosphorus will be spoken of: phosphoric trioxide,  $P_2O_3$ , and phosphoric pentoxide,  $P_2O_5$ .

Phosphoric trioxide, or phosphorus anhydride,  $P_2O_3$ , is formed when phosphorus is burnt in a limited supply of dry air; it unites with the greatest ease with water to form hydric phosphate, or phosphorous acid,  $H_3PO_3$  ( $P_2O_3+3H_2O=2H_3PO_3$ ), which acid forms a series of salts called phosphites.

Phosphoric pentoxide, or phosphoric anhydride ( $P_2O_5$ ), is formed when phosphorus is burnt in an excess of air. This anhydride forms three acids when combined with water.

Hydric metaphosphate, monohydric phosphate, or metaphosphoric acid (HPO<sub>3</sub>), formed thus:  $P_2O_5+H_2O=2HPO_3$ , which forms with bases salts called metaphosphates.

Tetrahydric pyrophosphate, or pyrophosphoric acid  $(H_4P_2O_7)$ , formed thus:  $P_2O_5+2H_2O=H_4P_2O_7$ , which forms salts called pyrophosphates.

Trihydric phosphate, or triphosphoric acid, or tribasic phosphoric acid (H3PO4) formed thus:  $P_2O_5+3H_2O=2H_3PO_4$ , which forms salts called phosphates. The acid being tribasic, it can form three kinds of salts, basic, neutral, or acid. One example will serve to explain; take the phosphates of sodium. It is plain that we can have three of these phosphates, according as the sodium replaces one, two, or all of the atoms of the hydrogen of the acid, thus: H2NaPO4, HNa<sub>2</sub>PO<sub>4</sub>, and Na<sub>3</sub>PO<sub>4</sub>. These would be Na<sub>3</sub>PO<sub>4</sub>, trisodium phosphate, basic; HNa<sub>2</sub>-PO<sub>4</sub>, hydric disodium phosphate, neutral; H<sub>2</sub>NaPO<sub>4</sub>, dihydric sodium phosphate, acid. Salts formed like the last mentioned are often called biphosphates or superphos-Besides these there is a hypophosphorous acid, H<sub>3</sub>PO<sub>2</sub>, forming hypophosphites, whose anhydride has never been obtained in a free state. There are also three compounds of phosphorus and hydrogen: H<sub>3</sub>P, phosphuretted hydrogen gas, a gas; H2P, liquid phosphide of hydrogen, a liquid; and HP2, solid phosphide of hydrogen, a solid. There are also several other compounds of phosphorus, for instance, with chlorine, bromine, iodine, etc., which are not of sufficient importance to be mentioned here.

SILICON OF SILICIUM (atomic weight, 28; symbol, Si). An element which, next to oxygen, is the most widely distributed of any on the face of the globe, and when com-

bined with oxygen, as it always occurs, it never being found in the free state in nature, forms a substance which is the most abundant component of the earth's crust. It is the essential constituent of quartz, flint, silex (hence its name). Silicon may be obtained in the free state in any of three forms, the amorphous, the graphitoid, or the crystalline. Under the first form it exists as a brown amorphous powder, insoluble in water; when heated in the air, or oxygen, it burns brilliantly, forming silica. The graphitoid form may be obtained from this by heating, when it becomes very much smaller, and of a much greater specific gravity; will not burn even when intensely heated. The crystallized variety is obtained by fusing the silicon under certain conditions, and allowing it to cool slowly; it is then hard enough to cut glass.

There is but one oxide of silicon known: Silicic dioxide, silicic anhydride, or silica (SiO<sub>2</sub>), the substance that is frequently called silicic acid, and which in the mineral kingdom can almost be said to be omnipres-In its purent forms we have it glittering in the rock crystal quartz; color this purple with oxide of manganese, and we have the amethyst; color it red or brown with oxide of iron, and we have the carnelian; color it yellow, and we have the false topaz. In all of these the silica is the chief constituent; it is also found in nature in an amorphous form, that is, uncrystallized. Of the latter class, the agate is typical. There are also the jasper, silex, or flint, etc.

Crystallized silica is attacked by no acid with the exception of hydrofluoric; it is very refractory before the blowpipe, requiring the most intense heat of the oxyhydrogen flame to melt it, when it fuses to a transparent globule. If it be mixed, however, with sodium carbonate, and then heated, it fuses with comparative ease, forming a silicate of sodium, "soluble glass," which, if boiled with water, will dissolve. Upon the addition of hydrochloric acid, the true silicic acid (H4SiO4) will partly separate as a gelatinous mass, and partly remain in solution. If, however, this solution be evaporated to dryness, and heated for some time at a temperature just a little above the boiling-point of water (that is to say, if it be "brought to

hard dryness"), and then some hydrochloric acid be added, the silica will remain undissolved as a white, amorphous powder, which cannot be again obtained in solution without the foregoing operation be repeated. The silicic acid before mentioned, HaSiO4 (SiO<sub>2</sub>+2H<sub>2</sub>O), forms with bases silicates. But the subject of silicates will not be entered upon here; suffice it to say that there are but few subjects in chemistry more complicated. The acid represented by the formula H<sub>4</sub>SiO<sub>4</sub>, is not the only acid that the silicic anhydride forms; far from it. And as for silicates, there hardly seems to be an end of them; they are called sub-, mono-, bi-, polly-silicates; ortho-, meta-, acid silicates, and so on. It would be useless, as well as out of place, to describe them here. They are fortunately not encountered in one's everyday walks in chemistry, without one should chance to walk in that direction. There are other compounds of silicon, but they are not worth noticing.

Boron (atomic weight, 11; symbol, B). We will close the series of elements which we have included under the head "nonmetallic" with boron. It is never found in nature in a free state, but combined with oxygen, or with oxygen and sodium, the latter being called borax, from which word the name boron is derived. In the same manner as carbon and silicon, it exists in three forms, amorphous, graphitoidal, and crystallized. When in the amorphous form, it is of a dull, olive-green color, soils the fingers, dissolves slightly in water, forming a greenish solution, from which it is precipitated unchanged by ammonium chloride. Boron, when crystallized, has a higher specific gravity than when amorphous. crystals, when pure, are colorless, but generally, however, from impurities, are of a yellowish cast. They are very hard, sufficiently so to scratch the ruby, and even to wear away the diamond. Boron, when strongly heated in oxygen or chlorine, burns with beautiful scintillations, forming either the oxide or chloride, as the case may be.

Boracic anhydride (B<sub>2</sub>O<sub>3</sub>), commonly called boracic acid, is the only compound of boron and oxygen known. It is found in great quantities in California, where it is utilized. It is also obtained in Tuscany. When in re-

gions of volcanic action, it issues from the ground in a free state, mixed with sulphuretted hydrogen, the gas is conducted into large basins containing water; the water absorbing the gas, the steam accompanying it is made use of for the evaporating of the water, crude acid crystallizes from the concentrated solution. This crude acid is purified by treating it with sodium carbonate until effervescence ceases, borax being formed (borax is an acid-borate of sodium). This borax is obtained nearly pure by crystallization. It is again dissolved, and enough sulphuric acid added to form sodium sulphate of the sodium present. The boracic acid being left in a free state, is then obtained by crystallization, in a state nearly pure, containing, however, some sulphuric acid, from which it is freed by fusion. The crystals thus obtained are boracic acid (HBO2, H2O), being composed of boracic anhydride and water  $(B_9O_9 + H_9O = 2HBO_9)$ . When heated it loses water, being converted into the anhydride, finally fusing to a transparent glass. Boracic acid is but slightly soluble in cold water, but freely so in hot. It forms with bases salts called borates, and has apparently the property of imparting to them ready fusibility, so that many of the borates make valuable fluxes, and are utilized accordingly.

Borax, acid borate of sodium, or biborate of sodium (Na2B2O7, 10H2O), is probably the most important, certainly the commonest, of all the borates. It is obtained in large crystals which, as will be seen by the formula given above, contain as much as ten molecules of water of crystallization to the molecule of borax; these are, of course, given up when the substance is heated. It swells up to a remarkable extent in the process, finally contracting to a smaller bulk than it first had, and forming a glassy transparent substance, which is anhydrous (containing no water), and is known as "borax glass." The power of dissolving metallic oxides, possessed by borax to a remarkable degree, renders it of importance in several connections. Most of these oxides have the power of imparting to the borax bead\* a character-

<sup>\*</sup> The borax "bead" is a small globule of borax, made by melting some borax in a small loop of light platinum wire (the loop forming a support).

istic color. Hence borax is an important reagent in blowpipe analysis. Some of the borax being fused in the loop of a light platinum wire, and a small quantity of the substance to be tested fused into this bead by the resulting color, very often the composition of the substance may be determined. Its power of dissolving oxides is utilized in the soldering of easily oxidizable metals. The borax is sprinkled on the metal, and the heat melts the borax as well as the solder. The melted borax then dissolves any of the oxidized metal that may be formed, rendering the surfaces clean, otherwise the oxide would interfere with the perfect joining of the two parts. Borax, like other borates (and like boracic acid also), is used often as a flux; in the enamelling and coloring of porcelain, for example.

(To be continued.)

## GERMAN CORRESPONDENCE.

More about Hardened Glass—Applications of Electric Light in Photography—The Lightning Process in Europe—News from the Paris Exhibition—The Peroxide of Iron, and its Use in Photo-Chemistry.

COMMUNICATED to you in my last letter some little experiments made with "hardened glass" (hartglas) for the benefit of its use in photography. Meanwhile, I had occasion to make some new studies about it. Herr Herrmann, ingénieur of the hartglas manufactory of Siemens, in Dresden, has brought some negatives on hartglas before a meeting of the Verein zur Foerderung der Photographie (Society for the Advancement of Photography) of Berlin. It makes a wonderful impression on any one to see how those negatives may be thrown through the room and on the floor without any danger of breaking. This item alone is considerable enough to justify a cost of onethird beyond the price of common glass. Besides, Siemens's hartglas is considerably different from the original French make, manufactured by De la Bastie. German products are accessible to be ground and drilled, and the time is not far when it can be cut with a diamond without breaking. Already, now, Siemens's glass will break to pieces when violently treated, whilst the

former French glass always crumbles into fine dust.

I dare not forget to say that the German method of hardening glass is entirely different from the French. Whilst the latter consists in cooling off in water or oil, ours is pressed between two even iron plates.

It is known that Siemens is our most prominent man in the practice of telegraphy and all applications of electricity in general. I also owe to him detailed information about the application of electricity to photographic purposes, as it is put in practice by Mr. Van der Weyde, of London. He uses a medium size electro-magnet producing an electric light of four thousand to six thousand standard candles, at about six hundred and fifty revolutions per minute of the induction cylinder; size, 30" x 28" x 11"; weight, 419 pounds; price, £112; loose pulley, price, £2; large lamp with silvered parabolic reflector, about twenty-four inches diameter and eight inches depth, on cast-iron baseplate, with ball and socket joint, £70. In addition to this, two carbons, 1s. 4d. per foot; and leading wire, £4 to £5 per hundred yards. This machine requires a force of four horse-power, which is not included in the above prices, and which will be about After this first cost nothing more is needed to produce always the brilliant light of six thousand candles. One horsepower cost about 1s. daily in our country, so that four horse-power were amply paid with \$2 daily. Then we also reach the point where electro light runs a great opposition to gaslight, when it is advantageous to use the same quantity of coal, which is fed in a gas retort in order to keep a steam-engine running, and thus illuminate the streets. It is not at all surprising to see several of these machines used in Paris. According to description its effect must be wonderful.

Though the electric lights are shaded by ground-glass shades, their intensity surpasses that of the full moon. Americans are amply supplied with sunlight, so that they have no particular reason to think about artificial light, except for their magic lantern exhibitions. The electro-magnet is easily transported, and in regard to the driving power, a portable engine would answer splendidly for the purpose.

The news about lightning processes has attracted all attention in this country. It is quite strange that I read about it sooner in American journals, than I have had occasion to hear about it by the inventor himself, who is Mr. Boissonas, of Geneva. Almost immediately after I had read your excellent June number of the Philadelphia Photographer, I received a letter from the inventor, with some samples, but without any description of the process. His letter was more a kind of an invitation to visit on the occasion of my next visit in Paris also the studio of Franck de Villecholle, where his process is put in practice. The inventor now makes efforts to sell his process in England. His first trial was made in America. Quite a good calculation. Let us hope that the secret will very soon be revealed.

Mr. Seavey, the famous background painter of New York, accompanied by his amiable wife and daughter, has recently honored me with a visit. He also visited Franck in Paris, where a nice picture of Miss Seavey was made in one second.

Meanwhile the news about the Paris Exhibition more and more engage the public. The opinions are very different. After all that I know of it, until now, the photographic exhibition shows some very good products by the old process, but nothing particularly new. A new Adam Salomon, who was in 1867, on the same occasion, the centre of attraction, has not yet put in his appearance. It seems as if he had not even exhibited at all, as I have not seen his name in any of the reports about the exhibition.

The old iron process, by Herschel, for the direct reproduction of drawings without camera and glass negative, the so-called lichtpaus process, gains lately more and more attention. This process has the advantage of cheapness. Marion, of Paris, sells a liquid for this purpose to sensitize the paper. Everybody can make it.

- A. Ferridoxetate of Iron, . . . 10 parts.

  Water, . . . . . 100 "

  Also.
  - B. Ferrideyanide of Potassium,. 10 parts. Water, . . . . . 100 "

Mix A and B, and you will get an excellent sensitizing solution for sensitizing paper.

It is not necessary to use Saxe or Rives paper; common drawing-paper will do. The sensitized paper will turn dark blue if exposed to the light, and turns white again if the exposure is continued. It has to be exposed until the blue commences to fade again. The fixing, which is done with warm water, renders those parts which are faded already a little, dark blue. These papers are less sensitive than silvered papers, and require about three times the exposure of the latter. I publish these few notes, as I heard that some one is going to apply for a patent for an old subject in order to derive money from it.

It seems also as if the iron salts were recently more studied than ever. Until now, the process with bichromate of potassium and gelatin has attracted all attention, so that all other sensitive substances were neglected. The above-mentioned process, which dates from the year 1841, is the first which guided to a practical application of iron salts in photographic chemistry.

Monckoven also has lately called the attention to the use of iron salts in the carbon process, what has been proposed twenty years ago by Mr. Poitevin, who now also, in the French Photographic Society, points out again the same subject. Poitevin bases a new lichtdruck process on his experience. A glass plate is coated with gelatin, which is made insoluble by the following composition:

Water, . . . . 100 parts.

Perchloride of Iron, . . . 10 "

Tartaric Acid, . . . . 3 "

The film thus treated regains its solubility when exposed to light. Exposed under a positive, it will give a copy which is insoluble in all parts which were not exposed to the light, which will take printing-ink and produce a positive lichtdruck. This method enables us to make a direct reproduction of cards, etc., that is to say, without the help of a negative. Poitevin says that it is also possible to make the film soluble again by acids, so that a negative may serve for the same purpose. In this case, he coats a piece of paper with the gelatin and treats it with the above solution; lets it dry, and exposes under a negative; develops then in warm water, and produces thus a negative on paper. If this is inked in, the whole piece will get black. Now the sheet is put in water, to which a little muriatic acid is added. The film gets soluble again and washes out, whilst the ink on the paper only will remain and form a positive picture.

All these little remarks on iron show very clearly to what an extent the use of iron salts may still have in photography. In consideration of the extended use of iron in the developer, and the new applications which Lea has given to iron in the alkaline developing process, it is quite useless to recommend especially the study of iron salts for photography. It is desirable to make them a little more sensitive, which may be possible by the test of many organic iron compositions quite unknown until now.

Truly yours, H. VOGEL.

BERLIN.

### FROM A LIGHTNING "LICENSEE."

THE following copy of a letter from one of Lambert's licensees to a fellow photographer, asking his advice as to the purchase of a license, has been sent us, with a request for its publication. It "speaks for itself."

Mr. ----

MY DEAR SIR: Your last inquiry about the merits of the L. N. P. was duly received. Pardon my delay in answering. I have been very busy.

I have no high opinion of the pretended new process. I paid twenty dollars for it, and for the life of me I can't tell why the sale should not be called a swindle, for I fail to find a new idea in the entire "process;" not even one single "dodge" that is not in common use by photographers. I was very anxious to make the process a success and introduce it to other parties here, and so gave it more time than I should otherwise have wasted on it. I was determined to make it a success, giving the utmost attention to the instructions; and you know whether I give up a trial easily. I got negatives, of course, but the best of them were weak and poor, such as we make when our chemicals are out of order. I tried again and again, at different times, always following the instructions, but always with inferior results. The negatives were always inferior to what you can get by doubling the strength of your developer, and the time required was more. The silver deposited is always coarse.

You are troubled by those recommendations, are you? Well, I have nothing to say in regard to them. But my sagacious friend of hopeful temperament and short memory, I will recall a very sensible remark made by you not very long ago, after you had spent several dollars of your hardearned money on a secret "process," and found at last it was a swindle. You said the most worthless processes had the most showy recommendations. And you yourself were quite ready on a half trial of the process to add one more to the number of recommendations. But you found your process a fraud.

I would not have invested one shilling in this on the general recommendations, but the Anthonys' recommendation "fetched" me, as it has others. The Anthony's have lately been more reserved in their indorsements; they no longer advise any person to buy the process. They merely advertise the chemicals.

A number of persons, seeing I was mentioned in the Bulletin as "not yet" making a success of it, have triumphantly sent me specimens of Lightning work. Some have written me patronizing letters (or rather postal cards), in which it is evident they consider the art treasures sent masterpieces of Lightning portraiture. You ought to see those pictures; they are the unkindest thrusts yet made at the L. N. P. You think your pictures are poor ones, and I had not the heart to contradict you, but your's are grand compared to those. By the way, I will send them to you. How they ever get them off on customers I don't know. Preserve them with great care; they are priceless! The picture of a dog, with an apple or something on its nose, was sent me by Mr. Lambert, who says: "This speaks for itself." And so it does. As you have had experience in photographing a dog that has been trained to stand still, you will understand its "speaking," and know just how difficult it is not. By the way, send me a card of your dog, the one standing on a trunk, with the meat in its mouth and the kitten on its nose, I want

to send it to the Anthony's. If you find you heart still yearns for the L. N. P. let me know, and you can have my license and welcome. Lambert will transfer it to you.

Yours, in haste,

S. V. ALLEN.

FREEPORT, July 3d, 1878.

## THE CALIFORNIA HORSE-ELEC-TRIC FEAT.

THE following will interest those who "take stock" in the wonderful California horse story.

"None know better than yourself that the country is full of photographic quacks yending their nostrums, deceiving the credulous, and defrauding the ignorant. California is noted for its 'largest pumpkins,' 'finest climate,' and most 'phenomenal horse' in the world. So also it has a photographer! the dexterity of whose "forefinger" invokes the aid of electricity in exposing his plate—a succession of plates, so as to photograph each particular respiration of the horse. The result is, a number of diminutive silhouettes of the animal on and against a white ground and wall; all these in the particular position it pleased him to assume, as the wheels of his chariot open and close the circuits. All this is new and wonderful. How could it be otherwise, emanating as it does from this land of miracles? Photographically speaking, it is 'bosh;' but then it amuses the 'boys,' and shows that a horse trots part of the time and 'flies' the rest, a fact of 'utmost scientific importance.' Bosh again.

"Respectfully, your friend,

"WM. H. RULOFSON."

### LEVY'S EMULSION PLATES.

A LETTER FROM MR. LEVY.

GREAT trouble with emulsions having A always been found in their liability to lift partly or wholly from the plate, especially after the fixing, I manufactured an improved edging fluid, which is now largely used and pronounced invaluable. Blisters, however, often present themselves in centre of plates, the prevention or removal of which

has hitherto in vain been attempted. I am now able to offer a cure for the same, as simple as it is perfect and complete, and would acknowledge my indebtedness for the same to my friend, Dr. J. J. Higgins, of this city, who uses my plates largely and with so great success.

Cleaning and talcing the plate, I edge it before the flowing of the emulsion, and again after it is dried, if used for dry plates.

After exposure, developing, and fixing, I wash the plate thoroughly with water, not minding the blisters at all, as the film will not lift from the edges; then laying my negative flat on the table, I cover the film with an ordinary sheet of writing-paper, somewhat larger than my plate, and holding it on one edge (so that it shall not slip), with the finger over the paper, I push all the blisters out through the opposite edge from where the paper is held. Although not indispensable, it is as well to make a few pinholes on the edge, to allow the water present under the film to come out the more easily. Instead of the finger a small roller may do it yet more evenly. Lifting then the paper up gently, the negative, without further washing, is set up to dry. In case of dust having settled on the film by carelessly using paper not previously dusted, it can be removed with a camel's-hair brush, after the film is dry, without danger.

Hoping the above may prove of benefit to some of your readers, I am, yours truly, A. LEVY,

77 University Place, N. Y.

P. S.—The run being now for rapidity, without laying any claim to "lightning," I am glad to be able to say that with my emulsion dry plates, as made by me or by others with my emulsion and preservative, well lighted views can be taken with an ordinary Darlot lens (portrait) in one-twelfth of a second, by using the developer usually directed by me, but of double strength, e.g.,

Bromide of Ammonium,. 160 grains. Carbonate of Soda, 2 ounces. Honey, . 2 drachms. Water, . 1 pint.

LANTERN SLIDES of the Paris Exhibition are received, and for sale. See advertise-

### MORA.

O<sup>N</sup> one of our rainy days in June, being on business near Mora's gallery, 707 Broadway, N. Y., I stepped in to see what he might have new in pictures, as I always like to when I have opportunity.

I found Mr. Mora disengaged from his regular business, having made arrangements for a visit of two or three months to London and Paris, mostly for recreation, but partly to provide for a more extended sale of his "Publics," as his published portraits of celebrated people are called. He was selecting from his stock samples to take with him. His stock was contained in six large cases, eight drawers in each case, eighteen divisions in each drawer, each division capable of receiving about four dozen imperial size; and all the divisions nearly filled. From these the regular orders are selected, and into these each day's work is assorted. Nearly one whole case was devoted to Miss Maude Branscombe. In reply to my remark about so many of one person, Mr. Mora informed me that they had sold over thirty-five thousand of her portraits, and were constantly receiving orders; and that he had made over three hundred negatives of her, and expected to make yet others.

Further in the conversation he informed me they had sold over three hundred thousand "Publics" during the past year, and that this part of his business was constantly extending, and quite profitable, as he was enabled to fill up all the time to advantage, many of his most successful Public negatives having been made on hazy and cloudy days, when private custom is usually dull; as people generally cannot be divested of the idea that the brighter the day, the brighter will be the picture. The aggregate business of the past year was over ninety thousand dollars, which, considering the hard times, and the fact that only about five years ago the name of Mora was not known in photography, may be called a pronounced success.

And it may be worth while to consider the ways and means used in reaching the foremost rank so rapidly; and yet more so, that it has been by none of the established cut-and-dried photographic fashions. Although at first the strong influence of his celebrated instructor was somewhat visible, Mr. Mora's genius was too original not to assert itself with marked individuality. He soon found his own methods and followed them. He has never exhibited for premiums in the usual patent-machine style, then advertised in handbills and placards the wonderful fact that he, among a hundred others, had got a medal. His advertising has all been done with the pictures he has made. Large and beautiful frames filled with fine and varied examples of his style may be seen in the best hotels and theatres all over the country, at all the large watering-places, wherever the best people congregate, and they are thus invited to judge for themselves the quality of his work. That their judgment is favorable his success is the best eyidence.

His gallery is very plainly furnished, with nothing for glitter and show, nothing to distract the attention from the few finely finished and tastefully mounted pictures which are negligently scattered about his large reception-room, the colors of which are all quiet, the walls being simply painted a dull maroon color, as the best foil to the bright pictures, while the plain furniture is all in keeping.

His operating-room, with its low, broad light, its rough, uncarpeted floor, and its stained walls, is not nearly so fine as many a gentleman's stable, but it has everything that is needed for the production of elegant and artistic photographic effects. There are a few pieces of rich furniture, and a piece of loose carpet as accessories for interiors, with a multitude of backgrounds, screens, profiled slips, fireplaces, window sets, balustrades, steps, rocks, etc.

He has more than fifty painted backgrounds, representing sea and sky, plains and mountains, tropic luxuriance and polar wastes; every style of scenery from Egypt to Siberia, mostly designed by himself, and all executed with Seavey's unapproachable knowledge of photographic needs. These grounds hang against the wall compactly, without feet, and when needed are lifted out and attached to feet readily, by the use of the ordinary dovetailed bedstead castings.

There could be a much more useful description given, but this article is already too long, and I will close it with the emphasis

of one fact that must be interesting to photographic workers everywhere. Mr. Mora's rapidly won success has been achieved through photography, with only its pure and simple light and shade. There has never been a painted photograph made in or sold from his gallery. And I think there is not another instance on record of a gallery reaching a business of nearly one hundred thousand dollars per year, that has been able, even if it has tried, to resist the seductive promise of easy profit from colored work. He has resolutely continued to turn away thousands of dollars worth urged upon him, although not one colored picture has ever been exhibited in his gallery.

Can there be any better evidence that Mr. Mora's success is not the result of fortunate chance, but the outgrowth of a well considered plan of action, based upon the natural promptings of an instinctive artistic taste? And what can be more encouraging to photographers than such positive proof of the noble results which can be drawn from plain portrait photography in energetic and artistic hands.

Yours truly, E. K. Hough. New York, July 13th, 1878.

## OUR PICTURE.

THE negatives from which the pictures embellishing our present issue were printed, came to us in our last prize competition from Messrs. Bradley & Rulofson, San Francisco, Cal., and are full of technical and artistic excellence. The work of these gentlemen is so well known all over the country, that it needs no comment or praise from us. We have also made our readers specially familiar with it by means of the examples we have been enabled to give them herein.

The present picture is well worthy of study and imitation, and we leave it with you for that purpose.

The prints were made at our own rooms, on S. & M. Dresden paper, sold by Mr. G. Gennert, and by request we add the formulæ used in making them, as follows:

### Silver Solution.

Water,	. 64	ounces.
Nitrate of Silver,	. 2560	grains.
Alcohol	. 4	ounces.

During the hot weather, fume twenty minutes.

Toning Solution.

Make a saturated solution of

Chloride of Gold, . . 20 grains. Sal Soda, . . . 10 ounces.

Tone with

Water, . . . . 100 ounces. Gold and Soda Solution, 8\* "

Adding the latter as needed, sufficient to tone the prints in about five minutes.

Fixing Solution.

Water, 5 parts, to hypo, 1 part.

The prints are acidified and salted according to Hearn's well-known formula, and well washed in running water; no rollers.

## FRENCH ITEMS PHOTOGRAPHIC.

T the last meeting of the Paris Photo-A graphic Society, Mr. Michaud presented some specimens of photo-engraving, made by a new process of his invention, which is simple, practical, and inexpensive. He asserts that he can transform, in a few moments, a photographic cliché into a metallic plate, which can be used: First, for the immediate production of lithographic prints, deliverable in twenty-four hours, and if the case is urgent, in the space of six hours. Second, for the obtaining also of printing-blocks, which can be delivered on the second or third day after the order. Third, for the preparation of a galvanic mould, in relief, which can reproduce, also by the same process, direct plates for copperplate printing, or thin plates of all sizes for jewelry work, of artistic effect and surprising beauty.

The processes of Mr. Michaud give another series of productions; the so-called photo-chemical plates, plain, or more or less ornamented, which can replace, very economically, the ordinary engraved plates. One operator in this line can produce the work of two hundred engravers.\*

<sup>\*</sup> Fuller details of this process are given on another page, in our review of M. Liebert's new work, to which please refer.—Ed. P. P.

Mr. Michaud gives the following method for making reversed negatives:

Upon a bath of gelatin of five per cent. of water, passed through a flannel filter, and maintained liquid at a mild heat over a water-bath, apply, without bubbles, a clean pellicle of castor-oil collodion (leathery collodion), attached to a small, rectangular wooden stick by two flat nails. After a contact of three minutes, raise so as to have a uniform liquid surface; place the stick upon a cross-bar adapted for the purpose, in an atmosphere rather damp than cold; do the same for the other pellicles, and a moment after, when they are dry, plunge them successively into an alum bath, containing one and a half ounces Troy, to a quart of water, in which they are allowed to remain two minutes. They are then to be washed for two minutes in dishes containing ordinary water. Again hang up, dry, cut off the edges, and preserve between sheets of ordinary paper until ready for use.

The cliché that is to be reversed is placed, immediately after fixing and washing, in a dish of water; the alumed gelatin pellicle is placed in another dish of water with a sheet of waxed paper of rather larger size. The gelatinized side of the pellicle is then applied to the cliché, and raised so as to avoid air-bubbles; the sheet of waxed paper is placed on top, and the squeegee passed over; the waxed paper is removed, and it can be used almost indefinitely; the two sides of the cliché are slightly wiped and placed in a positive frame, covered with a piece of dry and thick bibulous paper, then exposed to the sun, or in a heated room, where desiccation takes place rapidly. The dry cliché, placed in a dish of hot water, promptly yields, and in about fifteen minutes, the cliché pellicle, which is raised by the hand, is allowed to dry and may be used for direct exposure.

If the pellicle is very thin, and consequently difficult to handle, it should be immediately fixed in water, on a plate which has simply been gelatinized and previously dried, making use of the squeegee as above. It is then to be rapidly dried in a positive frame.

Instead of removing negatives in this manner by the use of pellicles of collodion,

which offer advantages over the gelating enerally used, in many cases simple waxed papers may be used, which are treated as above. These cliches never again require to be attached to glass; it suffices to pass a hot iron over them, between dry sheets of bibulous paper, to give them the necessary flatness and transparency.

This method of removing negatives may be employed without any modification for old negatives which have been simply varnished.

The following French judges have been appointed for the Photographic Section of the Paris Exhibition: Messrs. Davanne, Vice-president of the French Photographic Society; Ad. Martin, professor of natural philosophy; and Count Heliand, amateur photographer. Mr. Franck de Villecholle, photographer, has been added to this committee as supplementary member.

## SCIENCE FOR THE PHOTOG-RAPHER.

DR. J. I. Bonner says: "Faded writing in ink can be restored by brushing over with a solution of sulphide of ammonia."

Invisible Ink for Postal-Cards. — The Deutsche Illustrirte Gewerbezeitung proposes the use of what may be called "postalcard ink," for messages which are sent on such cards, or otherwise unsealed. A solution of nitrate of chloride of cobalt, or chloride of copper, mixed with a little gum or sugar, produces a "magic ink," which is made visible by warming, either by holding against the stove or over a burning match. Potassium ferrocyanide in solution may also be used; but this requires a developer, for which either copper or iron sulphate may be employed. With the former the writing will appear in brown, and with the latter in . blue color.

Photographers who wish to renovate and improve their accessories, will find the following useful: A new process has been applied in Belgium to the manufacture of artificial walnut, by which ordinary wood has imparted to it the appearance of the most beautiful specimens of walnut, adapted to the very finest cabinet work. The wood, first thoroughly dried and warmed, is coated

once or twice with a liquid composed of part by weight of extract of walnut-peel, dissolved in six parts of soft water by heating it to boiling, and stirring. The wood thus treated, when half dry, brushed with a solution of one part by weight of bichromate of potash in five parts of boiling water, and, after drying thoroughly, is rubbed and polished. The color is thus said to be fixed in the wood to a depth of one or two lines, and, in the case of red-beech or alder, for instance, the walnut appearance is most perfect.

Persulphuric Acid,  $S_2O_7$ , is a new acid, which has been obtained under the influence of electricity upon a mixture of dry sulphurous acid gas and oxygen; it crystallizes at a low temperature in transparent needles. It may also be obtained in the form of solution by carefully mixing chlorine water with concentrated sulphuric acid, but is not formed if the latter contains more than two equivalents of water. Under the various conditions the new acid may be obtained from concentrated sulphuric acid, perhaps also by acting with the latter upon alkaline or metallic peroxides in the cold.

Colorless Tincture of Iodine .-

 Compound Tineture of Iodine,
 40 min.

 Carbolic Acid,
 6 "

 Glycerin,
 1 ounce.

 Water,
 5 ounces.

Mix. The color disappears in from eight hours to as many days.

A Good Varnish.—Varnish made with alcohol will get dull and spongy by the evaporation of the alcohol, which leaves water in the varnish, as all commercial alcohol contains water. Take thin sheet gelatin, cut it into strips, and put it in the varnish; it will absorb most of the water, and the varnish can be used clear and bright until the last drop. The gelatin will get quite soft; it can then be taken and dried, and used again. "I have used this plan," says the writer, "for the last two years in photographic varnish, and have never had to throw away one drop."

ANILIN BRONZING FLUID. — Very useful in making paper mats, passepartouts, etc. Take ten parts of anilin red and five of anilin purple, and dissolve in 100 parts of alcohol at 95°, taking care to help the solution

by placing the vesselin a sand-or-water bath. As soon as the solution is effected, five parts of benzoic acid are added, and the whole is boiled from five to ten minutes, until the greenish color of the mixture is transformed into a fine light-colored bronze. This bronze is stated to be very brilliant, and to be applicable to all metals, as well as to other substances. It is easily laid on with a brush, and dries promptly.

As Dr. Thomas Buzzard says, discomfort, amounting in many persons to actual distress, is experienced in sitting for a photographic picture. He thus describes his own experience: "The eye is fixed upon a certain spot, and, while staring at this, vision becomes indistinct, surrounding objects especially being lost in a thickening mist. A feeling of giddiness, and even of faintness, is apt to follow, if the sitting is at all prolonged. The suffering which he, in common with thousands besides underwent, suggested to him the need of some remedy, and he soon hit upon a simple contrivance which obviated every feeling of uneasiness. He drew a circle about four inches in diameter upon a piece of paper, and converted the circle into a sort of clock-face by sketching in the Roman figures in their usual sequence. Then the paper was nailed to a post about eight feet from the position of the sitter. When the operation of taking the picture began he first fixed his eyes on the XII, then upon I, and so on, shifting the gaze leisurely from figure to figure, 'all round the clock.' There was no feeling of strain, weariness, or giddiness. The picture taken was free also of all appearance of constraint. There was no staring expression, and the eyes were clear and well-defined." This hint is well worth the attention of photographers.

This is M. Gaston Bangs' receipt for chrome blue: Calcine well, and intimately mix the following substances in the proportions stated: Boric acid, fifteen parts; alumina, fifteen parts; carbonate of magnesia, twenty parts; and chromate of baryta, two parts.

M. RAVAISSON-MOLLIEN read a paper lately before the French Academy of Sciences on the treatment of wounds by occlusion. In the winter of 1869 he suffered

greatly from chapped hands. He filled the wounds with filaments of wadding, and then covered them with collodion. This gave relief and a speedy cure. But this discovery is hardly new. Artisans receiving severe cuts or burns when at work, have long been in the habit of quickly covering the injured parts with mucilage or warm glue, and almost invariably the best results followed.

In an experiment made by Dr. Klein, five c.c. of a solution containing only one one-hundred-thousandth part of boric acid, mixed with the same volume of a solution containing fifteen per cent. of mannite, reddened blue litmus paper slightly after about one minute's action.

#### NEWS OF THE MONTH.

CORRESPONDENT of the Wochenblatt gives the following description, from personal observation, of the way in which photographic reproductions of oil paintings are made at MM. Goupil's establishment at Asnières: "New oil paintings are laid perfectly flat upon a table, and then receive the thinnest possible coating of white of egg, well beaten up, laid on with a broad beaver brush; while old or very dark pictures, or such as have mat spots, are rubbed with glycerin to bring out the details. The photograph is usually taken in the open air, on a wide terrace, or in a large courtyard, and large pictures are surrounded by large screens, made of a light wood, with dark calico stretched across, in order to keep off all reflected light. An opening is made in one of the screens, which is placed exactly opposite the picture, through which the lens, a very actinic Hermagis, may be pushed. Pictures with clear skies are canted a little forward towards the lens, or else they are turned upside down. When the picture possesses very little actinic color it must be exposed from four to seven minutes. The collodion used, which is extremely sensitive, consists of iodide of potassium (ground very tine), iodide of cadmium, bromide of zinc, and bromide of ammonium. The silver bath consists of

"Nitrate of Silver, . . . 7 grammes.

Distilled Water, . . . 100 "

Crystallized Nitrate of Zinc, 3 "

In winter there is no zinc, but then there ought to be eight grammes of silver. M. Quinet himself sensitizes the large plates with eminent skill. The negatives are seldom retouched, and even in the most difficult cases as little retouch as possible is put on "

Does anybody want a hint of something new, and that would be sure to take? Here it is, in the form of a lamp shade I saw in the house of an amateur friend a few days ago. The shade was one of the conical cardboard kind, both cheap and pretty, and which, when laid over the ordinary lampglobe, throws the light down on the table, and is really ornamental. Around the shade at equal distances there were ovals cut out and filled up with silver prints, which had been made semi-transparent by paraffin, and when in use the effect was charming. Photographers who adorn their reception-rooms with frames and photographic knick-knacks generally, should try something of this sort, and I am persuaded that there would be little difficulty, when taking orders for carte and cabinet pictures, to get a commission for a few such shades with portraits of the various members of the family inserted in the openings. If the manufacturers of mounts, etc., are not above taking a hint, I would suggest the propriety of their getting up such shades with the ovals cut out ready for the pictures. The inside should, of course, be white, and the outside of any tint they like; but secondary colors are more chaste and in better taste than primaries. A narrow band of gold might be put at the top and bottom, and also round the oval. Of course the price charged for these articles would depend on the work put upon the shades; but I know that a really beautiful article could be produced for a few shillings per dozen. Who will be first in the field, and not only make a good thing for himself but help others to do likewise?-John NI-COL, Ph.D., in Br. Jour.

THE BROMINE PRODUCTION OF THE UNITED STATES.—The only available source of bromine supply is the residual liquor from the salt furnaces, technically known as bittern.

A brief description of the process em-

ployed by our leading manufacturers in separating this important element from the salt liquors, may be of interest. The original salt liquor, or brine, is pumped out of the ground at 9° B., evaporated to about 15° in long iron pans; then allowed to settle, and is further evaporated in wooden tanks, heated by steam pipes, to the point of crystallization. The first crystallization yields the best salt of commerce; these tanks, five in number, are placed one above another; each day the liquor is run off from No. 1 to No. 2, next day to No. 3, and so on until it reaches No. 5, the crystallized salt being removed from each tank, or so-called grainer, after draining off the liquor. The brine, when it reaches No. 5, is bittern, and consists chiefly of chlorides of calcium, magnesium, sodium, and some aluminum, with varying percentage of bromides of sodium and calcium.

Tank No. 1 is each day filled with fresh brine, and thus the process becomes continuous. The bittern marking 30° to 38° B., is evaporated to about 45° B. By this further evaporation an additional percentage of impure salt is removed, the liquor is then run into stone stills, material for generation of chlorine added, and heat applied by means of steam injected directly into the still, until all the bromine has been eliminated and vaporized, which is conveyed through a condenser into a receiver.

The production of bromine was first commenced in the vicinity of Parkersburg, by Hegeman, a Danish chemist, formerly employed by the Pennsylvania Salt Manufacturing Company.

Mr. Hegeman's operations were of an experimental character at first, and he produced but a limited quantity. As there was at that time very little demand, he realized from four to eight dollars per pound for all he made. Mr. Hegeman patented the use of stone stills and steam in the manufacture of bromine and preparations. His claims and patents, as well as the small demand, prevented others from attempting to enter into competition. However, as the use of the bromides became more general, others began to manufacture bromide, their processes varying but little from Hegeman's, though modifications in details have been introduced by each.

Herman Lemer is now supposed to be the largest producer of bromine. He was formerly a poor shoemaker at Natrona, Pa., of limited education, but with rare energy, and has developed fine executive ability, which has led him to his present position.

The Ohio and Kanawha salt region yields bittern at least twice richer in bromine than any other yet discovered, and hence holds the balance of power over the whole world.

It is a remarkable fact that the Syracuse, and other New York and Western bitterns, do not contain any or but a slight trace of bromine.

The capacity at present is estimated by manufacturers at three thousand pounds per day, while the actual production does not exceed one thousand pounds. These figures are intended to convey the average production.

The only really new and very recent application of bromine is its use by a Paris firm, within a few months, in the production of a new anilin color.—Henry S. Welcome, New York.

From the Correspondenz we learn that Herr Dieterich, of Dresden, has introduced a novelty in test papers. By means of a machine, parallel stripes of red and blue litmus solution are run down the same sheet of unsized paper. The sheet is then made up in books, each leaf of which has one edge red and the other blue, so that the preliminary testing of solutions for acid and alkali may be done simultaneously. The object of this contrivance is, of course, to save time; but it is to be feared that in this case the saving, minute as it is, will be effected at the expense of accuracy.

HERR HONIKEL, of Leipzig, has, according to the Wochenblatt, proposed the following amendment of the carbon process: Starting from the assumption that the shadows and half-tones of all carbon prints are uncommonly rich in details, while the lights and high-lights are extremely poor, Herr Honikel proposes that instead of mixing black or dark coloring matter, as has hitherto been the custom, with the gelatin destined to form the pigment tissue, white pigments should be used, and the sensitive tissue exposed under a positive and developed, and

transferred to black or colored paper. Besides the more beautiful appearance claimed for such pictures, this method is said to possess the advantage of indefinitely increasing sensibility. According to Herr Honikel, the sensitiveness of white pigment tissue is from twenty to twenty-five times as great as that of ordinary carbon tissue; and yet another advantage claimed is that, by means of white pigment tissue, it is possible to produce direct enlargements upon paper with the camera. It is scarcely necessary to remind our older readers that the late Mr. William Blair devoted much attention to this kind of pigment printing, an account of it having been published by him nearly ten years ago.

Instantaneous Photography.—Emulsionized Collodion covered with Bromo-Gelatin and Rapid Drying of the Plates.—Mr. Ernest Boivin writes as follows to the *Moniteur*:

"The photographic season having arrived, I again take up my work which had been laid aside during the winter. I have just obtained, and with great regularity, very sensitive dry coatings by combining together the ordinary emulsionized collodion, or the washed emulsion, with the bromo-gelatin.

"Here is my mode of operation: Upon plates previously coated with caoutchouc so as to avoid blisters, I poured the emulsionized collodion; then, after having first washed in cold water, I plunged my plate in a dish containing tepid water; after draining, I covered this first sensitized coating with a warm solution of bromo-gelatin at six per cent., made with the Kennett pellicle in one-half ordinary water and beer, and then placed it horizontally in the drying-box.

"The exposure requires but a few seconds, and I used the alkaline development mixed with beer, to which I added a few drops of glucoside of ammonium. The image was developed without any fog, of very remarkable intensity, and no failures were encountered during the different operations.

"I have remarked that one of the principal guarantees of success in making use of the bromo-gelatin, depended upon the rapid and the uniform drying of the sensitized film. To obtain this I have followed exactly the directions given by Mr. Odagir in his excellent treatise for the construction of the drying-box, in which I have introduced a slight modification, having some importance, however, and which I am happy to communicate.

"In my drying-box the air is admitted through a tube of about ten centimetres (four inches) in length, by four or five (about two inches) in diameter, which I fill, without pressing, with carded cotton, to avoid the passage of dust which would be carried into the interior by the aspiration produced when the apparatus is in operation. I produce at will the aspiration or current of air, either by a lamp or by water. To use water I connect the drying-box by means of an indiarubber tube to the upper part of a water reservoir hermetrically closed; when the box contains all the plates which are to be dried, and is closed, I open a tap placed in the upper part of the reservoir, and at once a current of air is formed. By opening more or less the tap, the current of air is diminished or increased, and in this manner it is possible to obtain a regular and rapid drying free from dust, essential qualities in the bromo-gelatin process."

THE Polish photographer, Karl von Stefanoski, has made some interesting experiments on the intensification of carbon prints by means of permanganate of potash. The strengthening obtained by means of this agent gives the prints a greenish tint, possessing advantages in regard to the ulterior work. If a carbon print treated with permanganate is covered with an aqueous solution of pyrogallic acid, it soon acquires a sepia brown color and a vigorous tone. Under the same circumstances gallic and tannic acids yield a pure black tint, the intensity of which depends upon the concentration of the acid solution; if the print which has been strengthened with the permanganate is brought into contact with a decoction of campeachy wood, colors are obtained which vary from the blue to the violet-pink, according to the concentration of the liquid, the temperature, and the length of the reaction. This last being prolonged, the image becomes black, and the half-tones suffer.—Dr. Phipson, in Paris Moniteur.

## Editor's Table.

OBITUARY.—Mr. MICHAEL H. MAGEE, of the firm of JAMES F. MAGEE & Co., manufacturing chemists of this city, died on July 5th, after a long and lingering illness, aged thirty-nine years.

Mr. Magee was well known to many of our readers as an honorable and upright business man, always ready to oblige, and, with his brothers, built up a reputation which any one may with good reason envy. A large circle of friends mourn that he has been taken from them so soon.

TRAPP & MUNCH'S ALBUMEN PAPER continues to be very popular among those who use it. With a view to extending the sale of it, Mr. WILLY WALLACH, the well-known agent for this paper in New York, asks the attention of our readers to his new advertisement. Messrs. T. & M., like all enterprising manufacturers, are continually improving the quality of their product, and it will be to your advantage to try the last lot imported.

GOOD EVERY WAY is the following: "Inclosed you will find an idea or two, which may be new to some.

"I am much pleased with the journal this year; think, if possible, it is better than ever before. I believe I have every number since you started. Hope to be in your city this summer, and will call on you.

W. G. C. Kimball."

Let them come on.

CAUTION .- Allow me through the columns of your valuable journal to warn the fraternity against a most heartless villain who came to my room for employment, giving his name as Jонн Scholock; he also brought recommendations, which he said were from his late employers, which I looked at, but not knowing the parties I did not think of them after, nor can I now remember the names. Being in need of a view photographer, I engaged him for a few days, and kept him almost a month. Thinking him a worthy and honest man, I let him my branch room in West Medway for so much a week, and he to find all consumable stock, which he was unable to do, and which I forwarded him from my own laboratory, trusting to his honesty to pay back. I also allowed him to get a suit of clothes on my account, also several other bills, amounting to some fifty or sixty

dollars. He remained in my room three weeks, during which time I did not realize one dollar; he then absconded, carrying with him a pair of half-size matched tubes, and has not been heard of since. I would therefore caution all brothers against him, as he could not have been treated better than by me, and has proven himself a heartless scoundrel. Any information regarding him will be thankfully received.

T. H. BLAIR, Franklin, Mass.

Mr. C. R. SAVAGE, of Salt Lake City, writes: "I am working a combination collodion that is almost lightning-near enough to be safe. I am glad you are giving the process-vendors a shaking up. I was always afraid of a photographer who had a secret. Photography would not have been where it is to-day had it not been for such men as HARDWICH, LEA, VOGEL, and a host of other good souls who have no secrets. Good for you; keep at it. Your magazine is always worth the money and a great deal more. One item on making tanks and trays lined with beeswax, given by some photographer in Texas, has saved me a good deal of trouble and money. If photographers as a class would read more and blow less, the fraternity would be better respected."

ITEMS OF NEWS.—Dr. VOGEL'S Handbook of Photography has reached a third edition in Germany.

That horse story which comes from California is rather upset by Mr. Rulofson on another page.

And now a Pittsburg photographer claims to have the "Lightning Process," and invites everybody to come and strike an attitude for him.

Chicago has been quite excited over the opening and reception at BRAND's art gallery.

The St. Louis *Photographic Almanae* for 1879, we understand, is to be a "big (red-hot) thing."

Over one million copies of The Photographer to his Patrons have been sold. We are about to issue a cheaper edition of this valuable little work; send for a specimen copy. Once in use, no photographer will want to do without it. Parties are notified again not to infringe on our copyright. Several persons have done so, therefore we find it necessary to repeat this notice.

It is a notable fact and sign of the times, that not a single wet plate was exposed during the late excursion of the Photographic Society of Philadelphia, although the weather was wet.

Wise Words from the Workers.—Under this heading we have been publishing short articles from some of our practical friends, which have proved useful and interesting; and we desire to say that this column is open to all whom the spirit may move to say something. We would be glad to see our magazine filled with just such matter. Let the articles come on; we are always glad to get them.

PICTURES RECEIVED.—We have received from Mr. A. HESLER, Evanston, Ill., three pictures of children, as good as childrens pictures can be; they are fully timed, and in every respect well executed. "Taken with Thayer's Rapid material; exposure less than half a second; no support used," is written on their backs.

Mr. George N. Cobb, Binghamton, N. Y., sends us a number of fine Cabinet, Promenade, and Panel pictures. All well timed, artistically lighted, and gracefully posed. We were surprised and pleased, for we did not expect to see such superior work from that direction. Mr. Cobb certainly deserves credit for the advance he has made.

Some very interesting stereoscope views of the Geyser Springs, California, have come from Mr. Andrew Price, of Napa City. He also sends a few pretty Cabinets, and a portrait of himself.

From Portland, Oregon, Mr. Frank G. Abell sends two Cabinets, one of an old gentleman, already past the allotted age of man, and one of a young lady; both very well managed.

Mr. W. H. Moore, Marion, Ohio, sends some full-length Cabinets of ladies, as specimens of his work. The lighting and posing are good, and the pictures remarkably clear and sharp throughout.

Mr. J. W. Husher, Greencastle, Ind., sends some Cabinet photographs of his best work; also a very excellent likeness of himself.

From Messrs. Allen & Rowell, Boston, Mass., several specimens of carbon printing from pigment made with lake No. 3 and purple madder. These prints, they tell us, have been exposed in a south light from two to three months, and they certainly show no signs of fading. See Mr. Rowell's article on another page. We understand that Messrs. Allen & Rowell will furnish carbon tissues to photographers who desire it.

From Mr. Albert Levy, No. 77 University Place, New York, some instantaneous views made with his Improved Rapid-working Emulsion; views of animals, steamboats on their rapid course, and yachts flying before the breeze. This is a wonderful advance in photography: for not only is the general character of the view secured, but even the smallest details are brought out with perfect distinctness; the ripples on the water, the white foam dashed up by the wheel of the steamer, and the reflection of the boat in the glittering waves.

From Mr. J. PITCHER SPOONER, Stockton, Cal., we have received some examples of his card work, which are very good indeed. Mr. Spooner keeps up with the growth of photography, and enjoys a fine patronage.

From Mr. D. E. SMITH, Oneida Community, New York, we have a view of the exterior of the "Home" building and of the interior of the "Hall." The latter was made in thirty seconds, and is very well taken.

One of our subscribers writes as follows: "I am making improvements, so my customers say, and I hope so, and shall keep striving. Had I subscribed for your journal when I commenced business, and bought the books then that I have since, and could have understood them as I do now, it would have been dollars in my pocket, and saved me some fretting and stewing."

Hance's Collodion in Japan.—We have recently been shown a large order from Japan for Hance's Collodion, and we believe it is not the first order that has come from there.

This is a fine testimonial of the worth and convenience of this most excellent article.

LAMBERT'S "LIGHTNING" MATERIALS.—In our next issue we expect to give a first-class analysis of the materials sold to "Lightning" licensees. This is done to satisfy the curious, though we cannot say it will do them any good.

Fused silver we know is used; doubtless a cadmium-potassium collodion (all nearly neutral), developer of iron and ammonia, glauber salts and rock candy, and acetic acid, of course; however, no more guessing, but to the analysis.

Mr. Lambert is amusing. He now graciously gives his \$20 process to the public, after we had done so in our last number. We will keep on "making him sick," and he will have to "throw up" the whole thing presently,

## Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

GREAT BARGAINS.		
1 No. 1 Voigtlander & Son's Orthoscopic Lens for 8-10,	\$20	00
1 " 2 Voigtlander & Son's Orthoscopic Lens for 11-14,	. 25	00
1 " 3 Voigtlander & Son's Orthoscopic Lens for 17-20,	30	00
2 " 2½ Voigtlander & Son's Portrait Lens, no stops, each	25	00
1 " Yoigtlander & Son's Portrait Lens, C. S.,	25	00
2 " C. <sup>2</sup> Voigtlander & Son's Portrait Lens, C. S., each	50	00
1 " 3 4-4 Voigtlander & Son's Portrait Lens, C. S.,	50	00
1 " 3 Voigtlander & Son's Portrait Lens, C.S.,	60	00
1 " 3 A Voigtlander & Son's Portrait Lens, C. S.,	60	00
1 " 5 Ex. 4-4 Voigtlander & Son's Portrait Lens, C. S.,	80	00
1 Ex. No. 6, 7, and 7 A. Voigtlander & Son's Portrait Lens, C. S., each	100	
1 No. 9 Voigtlander & Son's Portrait Lens, C. S.,	300	

We are constantly receiving Lenses from parties to be sold; can send to any one C. O. D.; Express to hold money one week for trial. All of the above are fine Lenses.

BENJ. FRENCH & Co., Boston.

THAYER'S RAPID NEGATIVE PROCESS.—Sample prints from negatives made in less than half a second, sent when applied for. Address

N. C. THAYER & Co., Chicago, Ills.

BONANZA HOLDERS—Change in Prices.—8-10 size are now \$12.00; 10-12 size are now 15.00.

For sale by

N. C. THAYER & Co.

Chicago, Ills.

OPERATOR WANTED.—One who thoroughly understands making first-class negatives, artistic posing, and retouch negatives if required. None but strictly first-class need apply. Address

H. D. A., care of E. L. Wilson, 116 N. Seventh Street, Philadelphia. ONE THOUSAND DOLLARS CASH will buy the leading gallery in northern Indiana. For particulars address "Photo.,"

Care of N. C. Thayer, Wabash Av.,

Chicago, Ill.

To Photo-Lithographers and Engravers .-The undersigned, for nearly four years past in charge of the Cornell University Photographic Laboratory, where he has devoted himself chiefly to the production of photographic views and interiors, educational lantern slides, and relief plates for the printing press (the latter by a very successful process perfected by himself), now offers his services as a negative photographer, or to work his engraving process in connection with some other well established photo-mechanical business. Has had experience in nearly every branch of photography. For further particulars FRED. E. IVES, and references, address Ithaca, N. Y.

#### Waymouth's Vignette Papers.

For Sale.—One 14x17 Globe View Lens, cost \$135. Also, one View Box, folding bed, two fronts; plateholder, 14x14, with reversible kits to 4.4 size. Box and Lens warranted in good order. Price, \$70, cash.

C. E. MYERS, Mohawk, N. Y.

For Sale, for want of use.—One 14x17 Peace Camera and stand, with a C. C. Harrison Lens, patent diaphragm, \$75.00. One small dark-room and carriage, nearly new (photograph furnished on application), \$30.00. Apply to

GEORGE & WILLIAM H. RAU, 922 Girard Avenne, Philadelphia, Pa.

#### RICHARDSON'S SENSITIZED PAPER

is economical, because it saves time, trouble, and money, and its printing qualities are unsurpassed. See advertisement in *Photographer* for July and August, 1876, *Mosaics* for 1878, or send for circular to C. F. RICHARDSON, Wakefield, Mass.

#### TRY HALL'S TRANSPARENT VARNISH FOR FERROTYPES.

#### READ

WHAT LEADING PHOTOGRAPHERS SAY ABOUT

#### THAYER'S RAPID PROCESS, RETOUCHING PENCILS, BACKGROUNDS, and COLLODION.

CENTRALIA, ILL., June 17th, 1878.

N. C. THAYER & Co.:

DEAR SIRS.—The Rapid Bath, etc., arrived all right, and to-day I made groups in about four seconds, at four o'clock, P.M. I made some splendid negatives of babies in less than two seconds. Everything works like a charm. It appears to me that I can almost make a negative of a child instantaneously. I worked Lambert's (or tried to) for almost two month's, and after making a new bath I never got a negative in less than six seconds, and poor at that. So far as my experience goes with the two processes—your's and Lambert's—your's beats it two to one, both in time and quality of negative.

Respectfully yours, FRANK McKnight.

McKinney, Texas, July 2d, 1878.

N. C. Thayer & Co.:

DEAR SIRS.—The Retouching Pencils came to hand all right, and I have given them a thorough trial on all kinds of work, and must say they surpass everything in the way of a pencil for retouching negatives with that I ever have used. Now, I am a little slow to praise or puff up any thing until I can do it conscientiously. I think you should call them the Lightning Retouching Pencil, for I can do three times the work with them in one hour that I ever could with any other pencil, and I think I have tried all of them. Many thanks to you for the introduction of so good an article.

Louis Moberly.

DEAR SIRS.—The No. 42 Fancy Background arrived on the morning of the 4th, and I think it cannot be beat. It certainly is as nice as could be. Your Rapid Process works better every day.

F. McKnight.

KALAMAZOO, MICH., June 24th, 1878.

Background received; entirely satisfactory.

Draw on me for amount of bill whenever you choose.

Very truly yours,

PACKARD.

PEORIA, ILL., June 15th, 1878.

Please send us by express as soon as possible, two pounds of your *Quick* Collodion. It works splendidly. We have some instantaneous views to make of the regatta on Tuesday.

SMITH & LOQUIST.

First-Class Artists use N. C. THAYER'S Retouching Points, and pronounce them superior to all others. Mailed on receipt of 50 cents.

#### QUICK NEGATIVE PROCESS.

"DES MOINES, IOWA.

"N. C. THAYER & Co.

"DEAR SIRS: I have given your 'Quick Process' a pretty thorough trial, and am well pleased with it. Only one fault to find, chemicals are too high. I would sooner buy a permit and get the chemicals at Anthony's rates for Lambert's."

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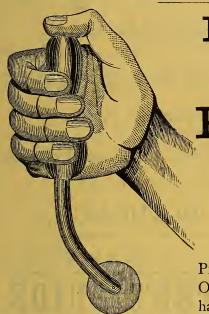
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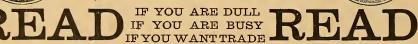
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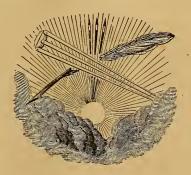
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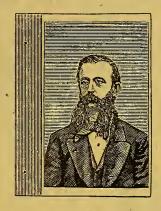
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$2\frac{1}{8} \times 3\frac{1}{8}$	$3\frac{5}{8} \times 5\frac{1}{8}$	6 x 8	$\cdot 2\frac{1}{8} \times 3\frac{3}{4}$	$2\frac{3}{4} \times 4\frac{1}{4}$	$4 \times 5\frac{5}{8}$
$2\frac{1}{8} \times 3\frac{1}{4}$	$4 \times 5\frac{3}{8}$	$6\frac{1}{4} \times 8\frac{1}{4}$	$2\frac{1}{8} \times 3\frac{1}{8}$	$2\frac{3}{4} \times 4\frac{1}{2}$	$4\frac{1}{8} \times 5\frac{7}{8}$
$2\frac{3}{8} \times 3\frac{3}{8}$	$4\frac{3}{8} \times 6\frac{3}{8}$	$6\frac{1}{2} \times 8\frac{1}{2}$	$2\frac{5}{16} \times 3\frac{15}{16}$	$2\frac{7}{8} \times 4\frac{5}{8}$	$3\frac{7}{8} \times 6$
$2\frac{5}{8} \times 3\frac{5}{8}$	5 x 7	7 x 9	$2\frac{5}{16} \times 3\frac{3}{4}$		$4 \times 6\frac{1}{8}$
$2\frac{7}{8} \times 4\frac{1}{4}$	$5\frac{1}{4} \times 7\frac{1}{4}$	7½ x 9½	FOR	STEREOGRAPI	IS.
•			Arch Tops.	Round Cornered.	Round.
$3\frac{3}{8} \times 4\frac{3}{8}$	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3\frac{1}{16} \times 3\frac{3}{4}$	$3\frac{1}{16} \times 3\frac{3}{4}$	3 x 3

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 $7\frac{3}{4} \times 9\frac{3}{4}$ 

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4-8-10 " .	101 "	66				60	00	8-20-24 " .				. 350 00
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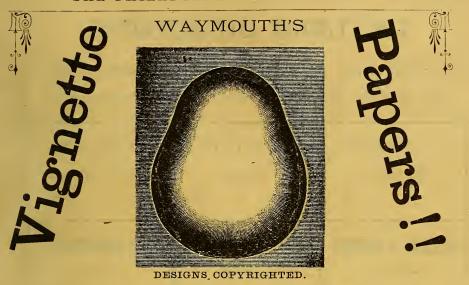
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# Philadelphia Photographer.

Vol. XV.

#### SEPTEMBER, 1878.

No. 177.

Entered according to Act of Congress, in the year 1878, By EDWARD L. WILSON,

In the office of the Librarian of Congress, at Washington, D. C.

# WISE WORDS FROM THE WORKERS.

BLISTERS.

N looking over our valued friend Vogel's letter in your July number, his remarks on blisters remind me of what I said on that point in last Mosaics. His remarks confirm what I then said, viz., that the main cause of blisters-those by dam-aging blisterslies at the door of the albumenizers; and I refer to it now in hope that their attention may be forcibly called to the matter. I do know, that to take plain paper (have it very dry and hard), and lay it on the albumen just long enough to make a coating on the said paper, will give to the poor photographer a paper that will blister in spite of all the blister-cures ever invented. I think I hear a smile come from friend Clemons, or the famous S. & M., across the briny deep, as they say, "Teach your granna how to take snuff, will you?" Yet I do know that albumen applied to paper previously dampened, and allowed to lie on the albumen sufficiently long as to absorb the albumen into the fibre, that such paper will stand almost any kind of treatment and not blister. Try it, ye albumenizers; and aid in removing one of the damaging trials of us poor photographers.

THE USE OF TRACING-CLOTH.

On page 213 of the July Photographer,

"How to do" asks for the experience of those who use tracing-cloth to shut out the sunlight from skylight rooms. I am using such screens, attached to spring rollers at the upper edge of the skylight, and find them just the thing. Under these I have blue, opaque curtains. The upper ones keep out the sun, and are rolled up or down in a moment. The blue opaque cuts off the light from any part I choose. My skylight-room is thirty-five feet long, east and west, by twenty wide. The light, nineteen feet long, east and west, by fourteen wide, facing north; lower edge, seven and a half feet from floor, with side-light three and a half feet wide by nineteen long, on which the top-light rests. The upper side of the light is fourteen feet from the floor. Under this light I make children's pictures in less time than you can say "scat," and groups as soon as you can say "Jack Robinson." But I could not do it with the "lightning."

SCRATCHES IN BURNISHING.

About two years since I was very much troubled with very fine scratches in burnishing, different from those caused by roughness of the burnishing tool. Another proof that the cause lay outside of the burnisher was, that two or three, perhaps, would burnish all right, then one scratched badly, next all right, and so on through the lot.

I asked several the cause, Mr. Bass among the number, but none gave me any satisfac-

tory reason. I finally found the cause to be, that the prints were allowed to get too dry before burnishing, and the remedy I used was as follows: After mounting, the moisture should not get out of the prints before burnishing. As soon as the prints begin to curl toward the picture, I pack them one upon another. My first plan was to place them in the cellar until ready to spot; while doing this I only expose one print at a time, keeping them packed. After spotting, lubricate with soap and alcohol (I find wax, spermaceti, etc., to give, in my experience, a veiled appearance), and spread out in the cellar upon something clean; I use a cloth stretched upon a small frame, where they should remain until ready to burnish. A superior burnish will result if they can remain twelve hours after lubricating, as directed, spread in the cellar.

I have since made another improvement, substituting for the cellar a tight tin box, which I had made large enough to hold my prints flat. Care must be taken not to have the prints too damp. I run them through, lightly, twice across the burnishing tool, until all are through, then run about four times again, commencing with the first; I run the first thin.

IRVING SAUNDERS, Alfred Centre, N. Y.

#### Mounting on Thin Cards.

I have found out how Goupil mounts photographs without cockling. The print and the mount are wet, the wet print pasted on the wet mount, and then a copper plate is put over the print (I suppose it is a little larger than the print), and the whole is powerfully squeezed together. The plate is then removed, and the mount, etc., dried under pressure. This is what Mr. Williams, of Williams & Everett, art dealers, tells me, and he has been many times to Paris, and professes to know. E. C. B.

It is difficult to clean glass bottles and other vessels that have been soiled with fatty substances; but if a concentrated solution of permanganate of potassium, to which a few drops of hydrochloric acid are added, be used as a wash, the cleansing is effected speedily and thoroughly.

#### OUR PICTURE.

M. Andrew Price, good photographer of Napa, California, will receive abundant gratitude from more than one co-worker with "fellow feeling," we know, for sending negatives to embellish our magazine of "The Hunter's Dream," which is the title he is pleased to give to the picture in our current number.

The composition is his own. It is intended to represent a wild scene in the wilderness, and not a parlor scene; hence any incongruities that are noticed will be overlooked, because no first-class dreams are conducted entirely according to Ruskin, who, after all, we well know, is a hard man to follow.

We personally confess ourselves fully able to understand Mr. Price's picture, and we know that many of our readers are just as expert with the rifle and the rod as they are with the camera, and are always glad when they can escape from the latter for a season and join the others in real substantial searches for just such objects as Mr. Price causes to take part in his "dream."

What lover of the forest and stream will take this picture in connection with one of our friend Stoddart's wild Adirondack views and look them over, without finding himself soon in the midst of a kindred dream? The experienced know, however, that such dreams do not come after one has been in camp a week, when the stomach is full of venison and duck and trout; also, that the hooting of the owl, and the capers of the chipmunk upon his heaving breast while asleep, do not cause him to dream thus. It is before success begins that these hallucinations come; when the stomach is hungry for game, when the "soft side" of the mattress of hemlock boughs has not yet been found; when, after the hard work of building and putting camp in order is over, he lies down to rest. It is under such circumstances that he dreams thus, in places such as the unknown author of Albania (amid the naked, towering ridges and the desolate barrenness and the quiet waters) tells us of, where

"There oft is heard, at midnight or at noon, Beginning faint, but rising still more loud, And nearer, voice of hunters, and of hounds; And horns, horse-winded, blowing far and keen. Forthwith the hubbub multiplies; the gale Labors with wilder shrieks, and rifer din Of hot pursuit; the broken ery of deer Mangled by throttling dogs; the shouts of men, And hoofs thick beating on the hollow hill. Sudden the grazing heifer in the vale Start at the noise, and both the herdman's ears Tingle with inward dread; aghast he eyes The mountain's height, and all the ridges round, Yet not one trace of living wight diseerns, Norknows, o'erawed and trembling as he stands, To what or whom he owes his idle fear,—To ghost, to witch, to fairy, or to fiend; But wonders, and no end of wondering finds."

Just such thoughts as these come in "The Hunter's Dream," we say. Many of us have had them, and we know. And then, dreaming on, the scene changes, and Wordsworth's sweet song flits across our brain in less time than we can repeat it.

"In this delicious region, cultured slopes,
Wild tracts of forest ground, and scattered
groves,

And mountains bare, or clothed with ancient woods,

Surrounded us; and, as we held our way Along the level of the glassy flood,
They eeased not to surround us; change of place Producing change of beauty, ever new.
Ah! that such beauty, varying in the light Of living nature, cannot be portrayed By words, nor by the pencil's silent skill; But is the property of him alone
Who hath beheld it, noted it with care, And in his mind recorded it with love."

But hunters' dreams are oft disturbed by the crash and splash of a deer, who has "winded" him, or by their own blissfulness. But, turning over again, we resume, and with another American poet, dream in language thus:

"Then I found myself
Midway in air; ridge after ridge below
Descended, with their opulence of woods,
Even to the dim-seen level, where a lake
Flashed in the sun, and from it wound a line,
Now silvery bright, even to the farthest verge
Of the encircling hills. A waste of rocks
Was round me: but below, how beautiful,
How rich the plain! A wilderness of groves
And ripening harvests; while the sky of June,
The soft blue sky of June, and the cool air
That makes it then a luxury to live

Only to breathe it, and the busy eeho
Of easeades, and the voice of mountain brooks,
Stole with such gentle meaning to my heart,
That where I stood seemed heaven."

And now the spell is again broken by the prosy snore of a chum, or the rustling of some tiny animal about our tent, but we are soon dreaming again, this time with Bryant, that

"It is a fearful thing
To stand upon the beetling verge, and see
Where storm and lightning from that huge
gray wall

Have tumbled down vast blocks, and at the base Dashed them in fragments; and to lay thine ear Over the dizzy depth, and hear the sound Of winds, that struggle with the woods below, Come up like ocean murmurs."

For has our hunter not often been led to stand upon the "beetling verge" of just such places, led in the chase far away from camp and companions, yet so charmed he could not bear to leave it?

Yea! it is "a fearful thing," but one does not consider when dreaming; and, in this instance, there was not time,

"For now we stood
Shut out from the prospect of the open vale,
And saw the water that composed this rill
Descending disembodied and diffused
O'er the smooth surface of an ample crag,
Lofty and steep, and naked as a tower.
All further progress here was barred;
. . . high or low appeared no trace
Of motion, save the water that descended
Diffused adown that barrier of steep rock,
And softly creeping, like a breath of air,
Such as is sometimes seen, and hardly seen,
To brush the still breast of a crystal lake."\*\*

And here we were awakened by the dismal pounding of our guide upon the bottom of a tin plate with a cup of the same useful metal, vociferating "breakfast!" between the sounds. We were indeed camped upon "the still breast of a crystal lake," and had overslept several hours. Meanwhile some of our companions had been out and "killed the breakfast;" and the guides had ready such a savory meal as just such a dream gives appetite for, and one which almost equalled that which Whittier arranged for the wed-

<sup>#</sup> Wordsworth.

ding feast of the Bashaba's daughter, Weetamoo, for

Bird of the air and beast of the field, All which the woods and waters yield, On dishes of birch and hemlock piled, Garnished and graced that banquet wild.

Steaks of the brown bear, fat and large, From the rocky slopes of the Kearsarge; Delicate trout from Babboosuck brook, And salmon speared in the Contoocook;

Squirrels which fed where nuts fell thick, In the gravelly bed of the Otternic, And small wild-hens in reed-snares caught, From the banks of Sondagardie brought;

Pike and perch from the Suncook taken, Nuts from the trees of the Black Hills shaken, Cranberries picked from the Squamscot bog, And grapes from the vines of Piscataquog."

But we have dreamed enough. Some of our readers we know will excuse us. If they do, let us hear from them. Others will, because the season for game is near at hand.

Those who will not, may be pacified somewhat by being wide awake to the fact that the pictures were printed in our own establishment on the Trapp & Münch celebrated albumen paper, supplied by Willy Wallach, Esq., New York, and by all dealers.

Formula the same as given in our last number.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 9.

The Mounting, Finishing, and General Final Operations necessary to Photographic Prints.

"A GREAT deal of the effect of a portrait will depend on the position the figure occupies in the picture. As a general rule, if the head be not equidistant from the sides of the picture, there should be more space allowed before the face than behind. A disregard of this rule has spoiled the effect of many otherwise good pictures. In some photographs, we see the figure walking almost out of the picture, for the sake of showing the last coils of the long caudal appendages with which ladies sweep the dust, thus sacrificing the head for the tail.

"The apparent height of the person represented depends almost entirely on the po-

sition of the figure on the plane of the picture. The taller the person, the nearer to the top should the head be placed, and if the figure be a full length, less of the ground should be shown.

"It often happens that the figure is made much too big for the picture. I have seen some cartes in which the head nearly touches the top of the picture, and the feet the bottom; so that when they were inserted in an album, some part must be covered, perhaps a foot cut off, or perhaps half the head. This is done, I suppose, under a mistaken notion on the part of the photographer, that he is giving enough for the money, a principle to which I have no objection; but let the 'enough' be in quality rather than in quantity. A carte de visite displaying proportion, taste, and a right feeling for art, is of much more value than a life-size picture, whether by painter or photographer, that does not possess these desirable qualities."

"The most simple method of mounting small pictures (that means the carte, victoria, imperial, or cabinet, and the promenade, or boudoir sizes), is to have them cut of proper shape immediately after the printing, and before being subjected to toning processes; then, after these have been consummated, and the pictures are sufficiently washed, they can be collected from the tank, piled together in small heaps upon a clean glass, and passed over to the mounter. He, or she, can take them one by one, whilst quite wet, and by putting them dexterously in place upon 'Slee's prepared mounts,' avoid all trouble and expenditure of time in the preparation and use of mountants. Their passage through india-rubber rollers, fashioned after a housewife's clothes-wringer, insures perfect contact between the print and card.

"If photographs have not been trimmed previous to toning, and are passed to the finishing-room, of irregular shapes, more time must be expended upon them. The neatest method of cutting out, is by the aid of 'Bergner's machines.' A separate cutter must, of course, be provided for every size. In lieu of these, and for the indicated purpose, Robinson's trimmers are the most valuable instruments extant.

"Now comes the question as to whether the pictures should be mounted wet or dry, and what particular adhesive material should be used. A happy medium between the two conditions of the paper should be chosen. The photographs should be sufficiently damp to prevent their curling up, and insure their lying flat; they should not be dripping wet. This state can readily be obtained by allowing them to lie for a few moments between wet cloths. All sorts of compositions have been suggested and used, but of them all, the plain starch-paste has remained most in favor.

"From the commencement of the application of our art to wholesale requirements, such as the illustration of books with photographs, it has been a vexatious matter to mount the albumenized prints upon paper sufficiently thin for book-binders' purposes, without showing a most objectionable and unsightly cockling or drawing of the edges and corners of the supporting paper. The result can be perfectly accomplished, but, unfortunately, the method entailed involves too much labor for the occasion. The following is from one of my 'scraps,' and answers tolerably well.

"The only mounting material hitherto in use, by which all risk of cockling is avoided, is india-rubber in solution, but, unfortunately, it is altogether untrustworthy; sooner or later, the prints are sure to leave the mounts.

" 'The cause of cockling in prints mounted on thin boards is, of course, well known. A print treated with starch-paste, gum, or any adhesive preparation of which water forms a large part, absorbs the water and swells or stretches. If, in this condition, it is attached to a dry board, it contracts again as the water evaporates, and necessarily drags the board to which it is attached out of shape, causing cockling or buckling. The point to be secured then, is an adhesive substance containing little or no water. Indiarubber solution answers this condition, but, as I have shown, it fails in other respects. I am about to describe another preparation which also answers without the disadvantages of india-rubber.

""A preparation for mounting, the nature of which has been kept a profound secret,

has been understood to meet all the necessary requirements. Some hints of its constitution having recently reached me, I have been induced to make some experiments, which have issued very successfully. The new preparation particularly consists of a solution of gelatin or glue in alcohol. This, at first sight, seems to be an impossibility, since, under ordinary circumstances, gelatin is not soluble in alcohol, but is, on the contrary, precipitated from an aqueous solution by the addition of alcohol.

"' My first attempt to make the preparation was as follows, but was a failure. scribe the failure that it may be avoided: I took gelatin and soaked it in water for twenty-four hours, until it was well swollen; and then draining off the water, added alcohol, and placing the jar, which was covered up, in a pan of water, put it on the fire to simmer. After the lapse of thirty or forty minutes the gelatin was softened and melted; but it was but very imperfectly mixed with the alcohol. On adding a little more alcohol, to supply the loss by evaporation, the slight degree of mixture which had taken place was at once destroyed, the gelatin being precipitated as a tough, viscous mass at the bottom of the jar; and no subsequent amount of heat or stirring with a glass rod secured even an approximate degree of solution or mixture. This was clearly a failure, and I began again. As I finally met with success, I will describe precisely what is to be done, giving the proportions of my own experiment, which can of course be easily increased for working on a large scale.

"Take half an ounce of gelatin and cover it with water; leave it soak for, say, twenty-four hours, in which time it will become thoroughly swollen. Now pour off all the superfluous water, except two or three drachms; place the gelatin with this trace of water in a glue-pot, and put it on the fire. When it is melted, add six ounces of alcohol; that which I used had a specific gravity of .820. A most important point, however, is the mode of mixture; the alcohol must be added a little at a time, stirring steadily with a glass rod, and maintaining a moderately high temperature. By proceeding carefully in this way, perfect mix-

ture is secured; and the solution is then poured into a wide-mouthed bottle, corked or stoppered, and set aside for use. This, applied to the print, causes a scarcely appreciable degree of expansion, and no subsequent cockling. Its adhesive qualities are perfect, and the preparation keeps well. To prevent the rigid hardness which characterizes good gelatin, I added from one to two drachms of glycerin to the preparation, which is, I think, an improvement. It is probable that any good sample of glue would answer the purpose, and for extensive use would of course be more economical. At first sight, the use of alcohol for mounting purposes seems costly; but as a little of the preparation will mount many prints, the expense need not be very serious. mounting photographic book illustrations, I think this will be especially valuable.'

"Amateurs, and others only requiring to mount a print now and then, often find it inconvenient to prepare starch-paste in small quantities; but the following mixture, when once made, will keep for months, ready for use. It is as smooth as oil, easy to prepare, does not thicken, and will stick like glue. It also has the advantage of not cockling the prints so much as the ordinary starch-paste:

"The gum arabic is to be pounded in a mortar, and mixed with the dextrin; then rubbed in the mortar, with two ounces of the water, till quite smooth; then the rest of the water added, and boiled in an enamelled saucepan for ten minutes. When cold, it may be put into a wide-mouthed bottle, the ammonia added, and thus kept for use."

"The following plan for cutting out stereoscopic pictures, can be recommended to those who have but a limited number of them to issue:

"The prints may be rapidly and neatly cut by a knife upon a glass plate, using two rectilinear glass guides; one, seven and a half by five inches, and the other three inches square. Let A be the right-, and B the left-hand view, as yet attached and un-

transposed. With the long guide cut the base of both views and the left of B, from which base, with the square guide (which is henceforth used), cut the right of B at the proper distance, then cut the left of A, upon which place B, and having marked off the width, cut the right of A. Superimpose both prints, and cut both tops together. All this is done in less time than it takes to describe, and the result is two rectangular prints exactly alike in size. By doubling up the upper portion of the prints, the four upper corners may be rounded by hand with scissors, which sometimes gives a finish, and removes that which it is not desirable to retain. Before commencing to cut the prints, the right-hand view should be marked at the back. The ordinary mounts being rectangular, and twice as long as broad, one may be used to draw a pencil line, dividing the face of the other into two squares."

"In olden times, both plain and albumen photographs were finished by rubbing upon them an encaustic paste, made by melting white wax, and diluting or softening it with a large proportion of spirits of turpentine. A little balsam of fir was added, and the smell of the whole disguised with oil of lavender, or kindred scent. This preparation was bottled, and sold by stockdealers and enterprising photographers at five times its cost of production. Its application to even a rolled print is of advantage, as it thoroughly cleanses the surface of the print, and gives depth and transparency to heavy shadows. The same object is attained by the more lately introduced plan of burnishing. This is accomplished by means of presses, that are so extensively advertised as to be familiar to every photographer.

"Now comes the treatment of a class of pictures that is held in so much terror by many photographers, that they refuse to accept commissions for them. I refer to the enamelled photographs, or, as they are more fashionably termed, the Glacés. It is true that they are troublesome and unremunerative, where the demand for them is only occasional. I was at one time connected with an establishment where three-fourths of all the work furnished to customers was finished in this manner. There, a young man was kept who had but little else to attend to than

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this glazing business. As a general rule, the results were satisfactory, but like all other processes where gelatin is made to take an active part, unaccountable mishaps would sometimes assert themselves. The various operations were simplified to the utmost extent. It is of primary importance to secure good glass for temporarily supporting the photographs. A most excellent glass is that which is highly polished on one side, and is furnished for negative-making; next, it must be well cleansed. With this glass there is but little trouble attached to the cleaning of it; it is furnished to you in good condition, with papers between each plate. A limited immersion in nitric acid is all that is necessary previous to washing; after that the glasses should be rubbed with canton-flannel moistened with alcohol. Finally, the polished surface is dusted with tale, or shoemaker's soap-stone, and this in turn rubbed off with clean cloths until no visible trace of it is left. It is essentially necessary that the glasses should be entirely free from scratches, sand-holes, or inequalities of any kind. Every mark, however slight, will be faithfully reproduced upon the collodion film. The glasses, when once well cleaned, will give you no further trouble for a long time to come. After successfully stripping off the pictures, the plates are in a better condition for being re-used than any amount of polishing could induce. All that is requisite is to scratch off whatever remnants of the dry film that may be found adhering to the edges. We have used the same plates daily for a month without washing; in fact, until the obverse side became so smeared that it was difficult to see through it. The glasses are to be coated with plain or normal collodion. It should be alcoholic in tendency, and prepared from samples of rather long-fibred cotton; it is better to make it in large quantities, that it may stand for days, and even weeks, before it is wanted. It should be used much thicker than for negative-making purposes. A plate should be coated, and when the collodion is moderately 'set' it should be laid almost horizontally upon a table; others are to be managed in the same manner. When you have coated a half dozen or more, the first plate will be ready for placing in the rack

for absolute drying; this must be accomplished in a room entirely free from dust. It is immaterial whether the glasses are collodionized the day upon which they are desired for use, or a week beforehand.

"The proper handling and use of the gelatin is the most important feature in enamelling. Nelson's photographic gelatin, No. 1, is the preferable brand; it is a beautiful preparation, put up in packets, containing the gelatin in almost transparent sheets, free from dirt or foreign matter. It should be cut into smaller pieces, thrown into a clean dish, covered with water, and allowed to swell to its fullest capacity. The water is now poured off, and a gentle heat applied until the gelatin liquefies; it will now be somewhat too thick, but can readily be diluted with warm water.

"It is impossible to give exact proportions for these operations; practice alone will teach the operator the most favorable conditions for the work.

"You need a table or counter upon which to work, placed near a window, securing to you plenty of light, and in a decidedly warm room. At the left-hand end of the table there should be a flat metal dish supported on legs sufficiently high to permit a gas-jet or spirit-lamp underneath; this dish should be half filled with water. Another dish for containing the gelatin should be suspended in it. In fact, it is merely a water-bath on the principle of a glue-pot. Alongside there should be a tray, in which you stand a wooden stool with a flat top, somewhat smaller than the glasses to be used (the 8 x 10 size is the most convenient). Near at hand you must have a basin of hot water and a clean sponge. The only other implement is a squeegee, best made of a piece of wood with a rounded edge, well covered with a couple of thicknesses of chamois-skin. The first thing to be done is to strain into the upper dish of the water-bath the melted gelatin. This must now be kept of an even temperature, and must feel slightly hot to the fingers. The pictures must be unmounted. You should have a pile of cards, slightly smaller than the glasses, and much thinner than are used for ordinary mounting purposes (unglazed bristol-board answers very well); a prepared glass, slightly warmed, is laid, collodion side up, on the stool; a couple of pictures, say cabinets (trimmed, of course), are immersed in the gelatin, together with one of the card-mounts. The pictures, whilst drippingly covered with the gelatin, are quickly placed face down to the collodionized surface of the glass. It is necessary to place them at first in proper position, and to conduct the subsequent removal of superfluous solution and the displacement of air-bubbles with celerity. This is best done with the aid of the squeegee, which should be repeatedly dipped in the hot water. Perfect contact having been insured between the pictures and glass, the card-board should now be removed from the gelatin, and pressed to the backs of the photographs.

"Finally, the back of the card can be sponged with warm water, and the plate with its encumbrances, stood in a rack, or hung upon nails to dry; no attempt must be made to hurry the drying; it should take at least twelve hours in a moderately warm, dry room. The surface on the pictures will be found most brilliant when it is necessary to pass a knife around the edges of the card and it is removed from the glass with a sharp crackling noise.

"The cards can now be trimmed to their desired sizes, and are ready for embossing, or cameoing, if they have been printed in the medallion style.

"There is no better press for the purpose than the ordinary copying-press used in counting-houses, slightly altered. Have the front and back of the top-plate sawed away two or three inches; procure a piece of guttapercha an inch thick, to serve as a bed-plate. Have the metal mats, or medallion shapes, at least a quarter of an inch thick. Lay a picture, face up, on the rubber; adjust the metal mat, slip under the centre of the press, and apply the required pressure. This is certainly very simple and easy of consummation.

"If desired, the finished pictures can now be glued down to the heavy beveled cardblocks made for the purpose. A neat appearance, and a precaution against injury to the surface of the picture is taken, by attaching a fiy-leaf of fine, pink tissue-paper to it. I believe the described method to be the mostrational and practical way of making 'Glacés,' or 'Abrilliantados,' as we termed them.'

(To be continued.)

#### SCIENCE FOR THE STUDIO.

VIVILIZED mankind, especially womankind, might be divided into two classes: those who are fond of having, and those who do not want to have, their photographs taken; the former class being largely in the majority. There are men who go about loaded with photographs of themselves, and at sight of each acquaintance discharge at least one of their likenesses into his custody. One of their chief occupations is distributing their portraits to anybody and everybody who can be persuaded to accept them, and they never seem happier than when so engaged. Women usually do not evince so much energy in disseminating photographs; but they are very willing to give them to their friends of every degree, and never tire of sitting before a camera in different costumes and attitudes. They often have an album exclusively devoted to their own image, and they love to show it. They are taken in walking suit, in morning toilet, in driving garb, and in evening dress, with their hair elaborately done up and wholly neglected, as representatives of conventionality, literature, romance, and the drama. They will talk of their photographs by the hour, soliciting criticism, though never wanting anything but commendation of their persons. They delight to be told that their pictures fail to do them justice, though they invariably resent the intimation that these are rather flattering. This may be said of nearly everybody who is in the photographic line. Men will not receive their likenesses, generally, unless they be decided improvements on the originals, and women never Photographers, understanding the peculiarities of their customers, always try to gratify their vanity; knowing that, if they fail to do so, they will suffer from lack of patronage. As a rule, neither man nor woman is willing to show a likeness that is not much better-looking than he or she. Every photograph must resemble its object; but it may be, and commonly is, the human object at the best, in such light, relief, or position as reveals him or her to special advantage. Hardly any of us like to know the exact truth of ourselves, pictorially or critically; our self-love and egotism demand

a reflection of our own prejudice in our behalf. Not getting it, we are dissatisfied. People who are constantly having photographs taken, almost invariably think they are handsome, or at least in some way attractive of person. Otherwise, they would be unwilling to have their features copied. But for the wide diffusion of vanity, many of our now prosperous photographers would be obliged to seek another calling.—Ex.

By applying the principle of construction of the revolving stereoscope to the microscope, I. Von Lenhossek has been able to observe sixty microscopical objects in succession without removing the slide or readjusting the object-glass.

Gatehouse has proposed a new method for the preparation of nitrogen gas, by the reaction of manganese peroxide upon ammonium nitrate. In one experiment, three grammes of the nitrate, heated with an equal weight of manganese peroxide, in a mercury bath kept at two hundred and five degrees, C., yielded six hundred and thirty cubic centimeters of gas, which was pure nitrogen. If the temperature rises too high, say above two hundred and sixteen degrees, the manganous nitrate decomposes, giving nitrous vapors.

CLEMANDOT has patented, in England, a process for producing the beautiful iridescence on glass, which has lately attracted attention. The glass is simply treated, under pressure, and at a temperature of 120° to 150°, with a ten to twenty per cent. solution of hydrochloric acid. The colors are produced by interference.

LIQUID PARCHMENT.—Dr. Hoffman recommends a fluid by this name, which is especially adapted for forming a protecting covering for pictures, cards, and the like, inasmuch as it permits of the cleansing of these from dirt with a moist rag. The preparation consists of gutta-percha softened and soaked in ether. Pencil-drawings and crayons may be rendered ineffaceable by sprinkling them with this solution by means of an atomizer. On the evaporation of the ether, an exceedingly delicate film of gutta-percha remains behind.

To clean glass bottles and other vessels

that have been soiled with fatty substances, use a solution of permanganate of potassium, to which a few drops of hydrochloric acid are added.

PLASTILINA is a permanently plastic mass, which has been recently introduced for the use of artists. F. Giesel has analyzed it, and gives the following formula for its preparation: Three hundred grammes oleic acid, and forty-three grammes of zinc oxide, are heated together until combined; this zinc salt is fused, together with sixty grammes of wax and one hundred and thirty grammes of olive oil, and the fused mass intimately mixed with two hundred and fifty grammes of sulphur and one hundred and eighteen grammes of clay, both in the form of impalpable powder.

PLATING IRON WITH PLATINUM.—The iron is first coated with lead and copper, by applying with a fine brush a paste made by mixing twenty-two parts of borate of lead and four and a half parts of oxide of copper, with a little oil of turpentine. The iron is then heated and immersed in the solution of platinum, after which it is allowed to dry, and then baked at a moderate temperature. The solution of platinum used is made as follows: Ten pounds of platinum are transformed into chloride of platinum, which is mixed with five pounds of ether; the latter is then allowed to evaporate spontaneously. A paste is then made of the residue, with a mixture of twenty pounds of borate of lead, eleven pounds of red lead, and a little oil of lavender; then fifty pounds of amylic alcohol are added .-- I. H. John-SON.

A LITTLE sugar added to Arnold's, or most any kind of writing fluid, will make a good copying ink.

This is Dr. W. W. Ireland's explanation of the fact of single vision, when people see really a picture of an object in each of their eyes: "The mind finding by experience that images impressed on certain points of the two retinas, which stand in a certain relation to each other, are really of one object, recognizes them as such; that is, two objects of the same color and outline, placed in a certain plane to one another, are fused into

one object by the mind, as is done in the stereoscope even when the motions of the eye are restrained, or two objects seen by an instantaneous flash of light, allowing no time for volition of the eyes. If, however, one of the two objects in the stereoscopic slide is different in form, or in color, they are seen as two objects."

THE English Mechanic says that the addition of a very little borax to starch mucilage, will make it as fluid as water.

A FINE black finish may be imparted to portions of the brass work of telescopes, levels, opera-glasses, in this way: A strong solution of nitrate of silver is made in one dish, and of nitrate of copper in another. The solutions are then mixed, and the article to be blackened is introduced. Lastly, the article is removed and heated until the desired depth of black is obtained.

Mr. Gorham has written a paper on complementary colors. The three primaries are green, red, and blue. Yellow he sets down as a lunary compound of green and red. Yellow and blue when mixed form white. After looking at a green disk the eye evokes another color, if the undulations be arrested by a gray surface. Grays can be formed by cancelling either reflected or transmitted rays of white light. The first of these cases may be illustrated by painting over white paper with a light wash of indian ink, and the second by observing the effect produced in Berlin tiles when the light and shades are obtained by varying the thickness of the ware.

NORMAN LOCKYER complains that modern painters generally lack a just appreciation of the science of color. There seems, he says, to be a notion that, while the shape of a horse's leg is defined by law, the order of colors in a rainbow, for instance, depends upon the play of blind chance. He mentions the case of an eminent living artist who actually was so indignant at having been requested to correct a rainbow in a picture which had been ordered, that a charge of one hundred dollars was demanded for painting the colors in the order they invariably appear in nature, and not inside out, as the artist thought they should be. "Impos-

sible cloud colors," "impossible color of water under sky conditions given," "unnatural moonlight and impossible pea-soup shadows;" "unnatural sunset-color and distribution of light wrong," "green hopelessly wrong," are among the phrases he employs in criticising pictures exhibited this year in London. "The whole range of physical science," he says, "a branch of knowledge which has existed for two and a half centuries, but which has lately been developed enormously, precisely in those directions of the greatest value to the artist, has not yet been annexed by the students of art."

Dr. Leibreich suggests the following rules to painters in oil who desire that their works may not deteriorate: 1. The oil should in all cases be reduced to a minimum, and under no form should more of it be introduced into a picture than is absolutely necessary. 2. All transparent colors which dry slowly should not be ground with oil at all, but with a resinous vehicle. 3. No colors should be put on any part of a picture which is not yet perfectly dry. 4. White, and other quick-drying opaque colors, may be put on thickly, but transparent and slow-drying colors should always be put on in thin layers.

#### PHOTOGRAPHY IN VENEZUELA.

UR well-known contributor Mr. John L. Gihon, is now in business away down among the gold mines of Venezuela. From a private letter from him we cull some interesting matter as to the manners and customs of those remote regions, and the difficulties in the way of travelling and of transporting goods over the unbroken country. The goods are first shipped from here, by brig or barque, to Port of Spain, Trinidad; from thence they are sent up the river to a landing-place, where they are slung over the backs of the tiny mules of that country (and for this reason everything has to be packed in as small compass as possible). Then begins the long, tedious, overland journey over level plains, through the dense tropical forests, winding along the precipitous sides of barren mountains, or following up the stony bed of some dried-up river; travelling by day, and camping out by night, for a distance of two hundred miles; and at last, after long delays, generally about two months, the anxiously-looked-for mule-train reaches its destination. Then, with what eager hands are the mail-bags opened, and how gladly the much-wished-for home news and letters from dear ones are received and read; the goods, how carefully they are unpacked, and closely examined to see whether everything has come, and if in safety and good order.

To the photographer, the little bottles and packages of chemicals are more precious than gold to the miser; for he fully realizes what it is to need, and be unable to supply the necessity, except after a long, long delay.

Mr. Gihon's customers are chiefly merchants and miners, two widely differing classes; the one composed of the *elite* of *their* society, and the other the veriest under-strata; however, he says, though rough and uncouth, the miners are generally honest; and he is doing a pretty good business among them.

He tells many peculiar and amusing anecdotes of his experience, one of which we will record. It is of the manner in which the owners of the mines secure themselves against any dishonesty among the miners.

"At the close of the eight-hour day's work the finger- and toe-nails of all the men are scraped, their hands and arms are very thoroughly washed, and even their ears are examined, to prevent them from carrying away any part of the precious dust and ore."

Gold is, indeed, a mighty loadstone, and all powerful to draw men into remote regions, surrounded by dangers and difficulties, cut off from the society of home and friends, and to keep them there until they either make a fortune or die in the attempt.

Photography, with its usual perseverance, has pushed itself into almost every place where the foot of man has trod; and we can sit in our cheerful parlors and examine the products of the camera, comparing a view in Japan with one of the wilds of South America, and trace a family likeness between a group of Patagonians and of Hottentots.

Mr. Gihon seems to be doing well, and we wish him all success in his adventurous undertaking.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 244.)

#### METALS.

ND now we have at last arrived at the second and larger division of the elements. Quite a number of the metals, however, are of rare occurrence, and will be no more than mentioned here. Some of them are most useful in their metallic state, others when in combination with the non-metals. They are, with the exception of mercury, all solids, and have the power of reflecting light to a great degree, giving them what is called a metallic lustre. They are all of them opaque to the light, the cause, perhaps, of their brilliant lustre. The properties of ductility, or capability of being drawn out into wire, and of malleability, or capability of being shaped by a hammer, are possessed by quite a number of them. The specific gravities, melting points, volatility, hardness, brittleness, and tenacity, vary very much with the different metals. They are better conductors of heat and electricity than the non-metals, and generally have a higher specific gravity.

They unite with each other to form what are called alloys, except when one of the metals is mercury, when the compound is called an amalgam.

In treating the metals, for convenience the following divisions shall be made:

- 1. The Metals of the Alkalies: Potassium, sodium, lithium, caesium, rubidium.
- 2. The Metals of the Alkaline Earths: Barium, strontium, calcium.
- 3. The Metals of the Earths: Aluminium, glucinum, zirconium, thoranium, yttrium, erbium, terbium, cerium, lanthanum, didymium.
- 4. The Magnesian Metals: Magnesium, zinc, cadmium.
- 5. The Iron Metals: Cobalt, nickel, uranium, iron, chromium, manganese.
- 6. Metals which yield Powerful Acids when their higher Oxides are combined with Water: Tin, titanium, mobium, tantalum, molybdenum, tungsten, vanadium, arsenic, antimony, bismuth.

7. The Copper Metals: Copper, lead, thallium.

8. The Noble Metals: Mercury, silver, gold, platinum, palladium, rhodium, ruthenium, osmium, iridium.

Potassium (atomic weight, 39.1; symbol, K). Potassium was discovered in the year 1807, by Sir Humphrey Davy. He separated it from the oxygen and hydrogen, which with it form potash, using for separating them a current of electricity. It receives its name from its oxide, potash (potash being known long before the metal was discovered and separated). It (potash) is so called from the words pot and ashes, because it was at one time prepared from wood-ashes.

This discovery of his, that potash was not an element, as had long been supposed, marks an important era in modern chemistry. Potassium, when in a metallic state, is a brilliant, bluish-white metal. At ordinary temperatures it is almost wax-like, being very easily cut with a knife. Its specific gravity is less than one, so that it is lighter than water. It has a very remarkable attraction for oxygen, but a minute's exposure of a piece of it to the air will be sufficient to cover it with a white coating of oxide; and if heated to a point of volatilization, it will burst into a flame, and burn quite violently. This property of potassium of uniting with oxygen, wherever it can find it, can be very prettily illustrated in a simple experiment. If a piece of metallic potassium be thrown upon water, its easy oxidizability is at once shown by its decomposing the water, taking the oxygen and half of the hydrogen, leaving the other half to escape (H2O+K=KHO +H). This escaping hydrogen is ignited by the heat generated by the reaction, and some of the potassium being volatilized, the hydrogen burns with the beautiful "potassium " flame.

There are three well defined oxides of potassium,  $K_2O$ ,  $K_2O_2$ ,  $K_2O_4$ , of which the last two are of minor importance, and the first only not so on account of its forming potassium hydrate.

Potassium protoxide, K<sub>2</sub>O, is very deliquescent, absorbing water upon the first opportunity, and forming potassium hydrate, KHO (K<sub>2</sub>O+H<sub>2</sub>O=2KHO), from which no

amount of heat can again drive the water, but as potassium hydrate will answer every purpose of the peroxide, the hydrate is always made use of.

Potassium hydrate, potassium hydroxide, caustic potash (even called at one time hydrate of potash) (KHO), is a hard, white substance, absorbing moisture and carbonic anhydride from the air with great rapidity. It is a very powerful cautery, destroying the skin. It dissolves in half its weight of water, generating much heat. It decomposes the fixed oils, forming in the operation soap (that kind known as "soft soap"). There are several sulphides of potassium; two sulphates (the neutral and the acid); a nitrate, known as nitre, an oxidizing agent, and a very important substance on account of its use in the manufacture of gunpowder, and in pyrotechny; the iodide and bromide, quite important, of course, in photography, and very useful in medicine; a chlorate, the "sore-throat stuff," quite important as an oxidizing agent, etc.; two carbonates (neutral and acid). The salts of potassium, with few exceptions, are colorless, or white; they are all soluble in water, the sulphate, perchlorate, tartrate, and platino-chloride, being the least so.

Sodium (atomic weight, 23; symbol, Na). Sodium was discovered by Sir Humphrey Davy, immediately after his discovery of potassium, and separated by him in the same manner. It is named from its oxide soda, which in turn is derived from a Spanish word, the name of a plant, from the ashes of which much soda was once prepared. In its metallic state, it is of a bluish-white color, soft, indeed it much resembles potassium in many respects. The same reaction takes place with sodium as with potassium when it is thrown upon water, with the exception that if the water be cold, the heat generated will not be sufficient to ignite the liberated hydrogen. If, however, the water has been previously heated, or has been thickened with starch, the hydrogen will burn, and, on account of the volatilized sodium, with the "sodium" flame (which is one of the chief distinctions between sodium and potassium, potassium colors the flame purple, whereas sodium colors it yellow). Sodium compounds are very widely diffused (to a far

greater extent than those of potassium). They exist very abundantly in sea water, and in many minerals and rocks. A particle of dust even contains it.

There are two oxides of sodium known; Sodium oxide (Na<sub>2</sub>O), and sodium dioxide (Na<sub>2</sub>O<sub>2</sub>). The latter is not much more than a chemical curiosity; the former, a white powder, is not made use of directly, it takes up water, however, with great rapidity, forming

Sodium hydroxide, sodium hydrate, or caustic soda (NaHO). From this the water cannot again be driven by heat. It resembles to a very great extent potassium hydrate, although it is not as volatile. As for other properties, they are so much alike that the description of the one answers for the other; sodium hydrate, however, makes "hard" soap, in soap-making. It is also much cheaper than potassium hydrate, and is accordingly used in preference to the potassium compound, when a preference can be made.

Sodium chloride (common salt) (NaCl) is a most important salt of sodium, one of such every-day use, however, that it will require no description. It is not only of value as salt (with its thousand-and-one uses), but also for the preparation of other sodium compounds.

As for the remaining salts of sodium, the mention made previously of like salts of potassium would almost serve. There are two carbonates, the neutral and bicarbonate; two sulphates, the neutral being known by the name of glauber salts; a hyposulphite; a biborate, which has been described, and so on through the whole catalogue.

LITHIUM (atomic weight, 7; symbol, Li.) Lithium was discovered by Sir Humphrey Davy, soon after his discovery of potassium and sodium, and by the same means. It was so named from a Greek word, meaning a "stone," because at first it was found only in the mineral kingdom. At one time, it was supposed to be of but rare occurrence; but later investigations have proved that, although in very small quantities, it is still quite widely distributed, being found in many springs, in tobacco, in milk, and even in the human blood. Like sodium and potassium, it has its characteristic flame. The

"lithium" flame is of a most beautiful crimson color. Lithium is the lightest metal known.

RUBIDIUM (atomic weight, 85.4; symbol, Rb). Rubidium was discovered in 1860, by Bunsen and Kirchoff, by means of spectrum analysis. Its name is derived from the Latin, and means "dark red;" so called from some of the lines produced by it in the spectroscope. It occurs in a few minerals, some mineral springs, and sometimes, in very slight traces, in beet-root, in tobacco, in coffee, in grapes, and in other plants.

CAESIUM (atomic weight, 133; symbol, Cs). This metal was discovered by Bunsen and Kirchoff at the same time and by the same means as rubidium. It was so named from a Latin word, meaning "sky-blue," referring to the color of the lines in the spectroscope. It is so much like rubidium, and the two are so very much like potassium, that they had never been separated from that metal, or even known to exist in connection with it, till the spectroscope unnounced the fact.

Ammonium (molecular weight = 18; formula, NH4). From studying the ways the various salts of ammonium are built up, the conclusion has been arrived at that there is a metal, NH4, ammonium. This conclusion is only theoretical (very plausible, however), as no such metal has ever been obtained. It is supposed, though, that there is an amalgam of it with mercury, but some are skeptical enough to doubt this; that is, not to doubt the existence of a certain substance that seems evidently to be ammonium amalgam (for it is easily prepared), but the assertion that this is a compound of the metal ammonium and mercury. Whether there be such a metal or not, there is no objection to supposing one such. According to all its characteristics, it would be classified under the head of the alkaline metals. Its salts resemble those of the other alkalies very much; they are all of them volatile, however; most of them volatilizing without change.

The metals of the alkalies resemble each other very much in many particulars. Sodium, whose properties are intermediate between those of potassium and lithium, has for its atomic weight a number which is a mean between those of potassium and lithium. After the same manner, rubidium is related to potassium and caesium. They are all monivalent; they are all soft, easily fusible, volatile at high temperatures; they all decompose water with the evolution of hydrogen. They are very easily oxidized, forming basic oxides, which have a great attraction for water, forming with it hydrates, very alkaline and caustic, from which the water cannot be expelled by heat; having also a great affinity for carbonic anhydride (CO<sub>2</sub>).

We come next to the metals of the alkaline earths.

Barium (atomic weight, 137; symbol, Ba). Barium was first separated by Sir Humphrey Davy, in the same manner as potassium. It received its name from the oxide baryta, and should have been named barytum. This latter name has been proposed, but too late to be of use. Baryta itself is derived from a Greek word, meaning heavy, because it is the heaviest of the earths. It has been separated as a metallic powder. It decomposes water at all temperatures, is easily oxidized in the air, tarnishing almost immediately upon exposure.

It forms two oxides: Barium protoxide, or baryta (BaO), and barium peroxide (BaO<sub>2</sub>). The first is the only one that forms salts; the other is but of slight importance. Baryta unites easily with water, forming the hydrate, BaH<sub>2</sub>O<sub>2</sub>; not very soluble in cold water, but quite so in hot.

There are many other salts of barium, but hardly of enough relative importance to be mentioned here. The "barium" flame is of a yellow-green color.

STRONTIUM (atomic weight, 87.5; symbol, Sr). Strontium was separated in the metallic form in the same way as barium and the alkalies. It is named from its oxide, strontia, or strontian (called thus from Strontian, a place in England, where it was first found). It decomposes water at all temperatures, and much resembles barium. It is a malleable metal of a pale-yellow color. The "strontium" flame is of a beautiful crimson color. There is but one oxide:

Strontium oxide, strontia, or strontian (SrO). Strontium nitrate is much used in pyrotechny, for the beautiful color it imparts to the flame, more than the other salts of strontium.

Calcium (atomic weight, 40; symbol, Ca) was obtained in a metallic state by Sir Humphrey Davy, in the same way as the alkalies, etc. It is so named from the Latin term for lime. It is of a light-yellow color, and is very malleable. It decomposes wa'er, and is very easily oxidized under all circumstances. It has but one oxide:

Calcium oxide or lime (CaO) is obtained by heating or "burning" the carbonate, the purity of the lime depending on the purity of the carbonate used, of course, and the carbonate occurs in nature in all stages of purity. The quick, or caustic lime, used for building purposes, is manufactured from limestone, and is sufficiently pure. Pure lime is very infusible; the oxyhydrogen flame fails to attack it; it however renders it very incandescent. This property is utilized in the oxyhydrogen light (an invention of the late Dr. Hare, of Philadelphia. The honor of the invention was claimed by an Englishman, a Lieutenant Drummond, of the British Navy, and although there were no foundations for his claims, the light often goes by the name of the Drummond light). Lime has a great attraction for water, uniting with it readily and with great heat, forming a white powder called calcium hydrate, or slack lime (CaH2O2).

This hydrate has a great attraction for carbonic anhydride (CO<sub>2</sub>), to which fact is partly due the hardening of mortar, the lime absorbing carbonic anhydride, and being changed into the carbonate. The lime also unites with the silica of the sand in the mortar, forming an insoluble silicate.

Calcium carbonate or carbonate of lime (CaCO<sub>3</sub>) occurs extensively in nature; as limestone, marble, coral, chalk, calc, or Iceland spur, and some other minerals. It is insoluble in pure water, but dissolves quite freely in water containing carbonic acid. Water containing it thus dissolved is temporarily "hard." Boiling will drive off the carbonic acid, and the calcium carbonate

will separate out; or it may be made "soft" in other ways.

Calcium sulphate, or sulphate of lime (CaSO<sub>4</sub>) occurs in nature as gypsum and alabaster, which contain two molecules of water of crystallization. When these are driven off, plaster of Paris is formed. It is quite insoluble in water. Water containing a trace of it becomes permanently "hard," not being able to be changed by boiling. Many of the other salts of calcium are common, and very useful.

The three metals of the alkaline earths are divalent. They all decompose water quite readily. Their carbonates are insoluble in water, but soluble in water containing carbonic acid.

(To be continued.)

# "LAMBERT'S" LIGHTNING PROCESS.

THE ANALYSIS.

WE now proceed, agreeable to promise, to give our readers the result of the analysis of the Lambert-Anthony "Lightning" chemicals. We have already published the instructions furnished to his "licensees" by Mr. Lambert for twenty dollars, and were fully aware at the time that we were not giving his "process." True we have used that word in this matter as others use it, but were not aware really that Mr. Lambert had any process. His plan has been to sell instructions (which we published in full) to parties for twenty dollars, and various other sums, with varying conditions, accompanied by a "license" to use certain chemicals, which could be bought at one place only. We have never seen any obligation between him and his "licensees," and hence, when one of the latter, dissatisfied, sends us some of the privileged chemicals for analysis, with a request to publish the result, we are very glad to do what we can to oblige the party, and perhaps secure a hint or two for our readers. Too much, however, should not be expected from an analysis of this nature. Chemistry is not yet sufficiently advanced to take up any solution and tell, measure for measure, what is in it, especially

in a mixed solution like collodion or developer, for in searching for one ingredient another is often formed, and mayhap lost, in the search for the first.

A quantitative analysis is still more difficult, especially, as in this case, there is a possible change from contamination by use. However, in this instance, it would make but little difference. No matter what analysis we might publish, it would be unscrupulously denied, and we are prepared for this. Nevertheless we have kept our promise to our readers, and preferring not to trust to our own knowledge in the matter, have enlisted the service of one of the oldest, most experienced, and best analytical chemists in the country, Prof. Thomas H. Garrett, and herewith submit his report:

PHILADELPHIA, August 20th, 1878.

"DEAR SIR: We have examined the three bottles of 'Lightning' photographic chemicals, with the following results:

"Collodion.—Besides ether, alcohol, and gun-cotton, it contains iodine, cadmium, and a little ammonia.

"Silver Bath.—Contains 37.78 grains of metallic silver, or 59.47 grains of nitrate of silver to the fluid ounce.

"Developer.—Contains acetic and sulphuric acid, alcohol, protoxide and peroxide of iron, oxide of copper, ammonia, and sugar.

"Yours respectfully,

"BOOTH, GARRETT & BLAIR."

From this we may safely say that the collodion is a cadmium-ammonium salted collodion. The bath about sixty grains strong, of fused silver, because it was neutral. The developer is surely a most strange mixture, and in this lies the most novelty.

The analysis is yours, and it may be useful to you.

Prof. Stebbing, however, in giving Mr. Henderson's process in his correspondence this month, may save any further trouble with this, inasmuch as the "secret one" alluded to by him, is none other than Boissonna's process, which is Lambert's.

You therefore have enough to save you investing twenty dollars with Mr. Lambert, and we hope you will find our journal pay you this year.

#### AT THE PARIS SHOW.

I SUPPOSE the reason why Dr. Vogel has not already sent you a full account of the Paris Exhibition ere this is, because, with much wisdom, being a man of large experience in international exhibitions, he has postponed his visit until the Exhibition is quite ready. And the reason why you have not heard from Prof. Stebbing, in the same direction, is because when he sends news he wants to send the best, and therefore he is waiting until the awards are made, and then you will hear from him.

But I am tied to you, even if you hear from the others a dozen times; for don't you remember how you squeezed my hand when I sailed, and how you said "Good-by now, Dan; go to the Exhibition, but don't you go near Paris; and remember to send me a full account of it, not forgetting anybody whose representations hang there, for we don't want anybody hurt; and you know what you will write will be so fresh and so different from what the professors will write?"

Vogel and Stebbing forgive you, then I will cease chatting, and step into the work. You know what June weather is on the Atlantic; stubborn collodion is nothing to it. Therefore I was sick, and glad enough to get ashore at Havre. I made no delay in going to Paris, and when I arrived there, there was no delay made in reaching the Exhibition, for that best of fellows and splendid artist, Dan. Knight, our old boyhood chum, had my chambre all fixed, ready to stand my satchel and umbrella in; and, after freshing up, I went to the Exhibition.

Ah! didn't I think of you? As soon as I neared the Champ de Mars, I began to feel the atmosphere of an international exhibition. The swaying crowds, the hum of voices, the confusion of tongues, the everything told the tale. Many long months I stood near you through such a scene, and with eyes unopened I could have told where I was. Yes, I was at the Paris Exhibition. You tell us in your Lantern Journeys that when Byron first entered Rome, he began to sing—and he sang:

"Whence this excess of joy? What has befallen me? And from within a thrilling voice replies, Thou art in Rome!" And so a thrilling voice kept saying to me, "Thou art in Paris." My first feeling was one of disappointment. So very much smaller did the inclosure seem than the one at Philadelphia, and yet everything was so bewilderingly beautiful that I could make no delay for comparisons.

The most striking feature of the exhibition, architecturally, as you will see by the photographs, is the Trocadéro Palace. It stands on a hill overlooking Paris, which required considerable quarrying to make it shapely. Long miles before it is reached, the splendid dome—not in appearance like that of St. Peter's, at Rome, but reminding one of it, with its accompanying minarets glistening in the sun, again recalling Constantinople-may be seen plainly. The "order" of its architecture is somewhat Moorish, and more Renaissance. Many thousand people and I stood within its rotunda, and in case of a shower, many more of us could creep into the two-storied corridors which stretch out at either side on the river front, again reminding us of Italy. We find two graceful campaniles, square and tall like Giotto's at Florence, flanking the central building, from whose sides long curved wings extend, whose colonnades and terraces overlook the garden. This garden, as you see, is beautifully parterred and bedecked with variously formed and painted little cottages, summer-houses, and pavilions.

The fountain and the cascade must not be forgotten. They add an exquisite charm to the whole, as water in motion does to almost everything of beauty.

The Trocadéro, after the Exhibition, is to be devoted to the purposes of a museum, permanently, and to be known as the "Galléries de l'Art Rétrospectif." Its collection is intended to form a history of civilization, and to represent in chronological order, ancient and historical art in their varied branches.

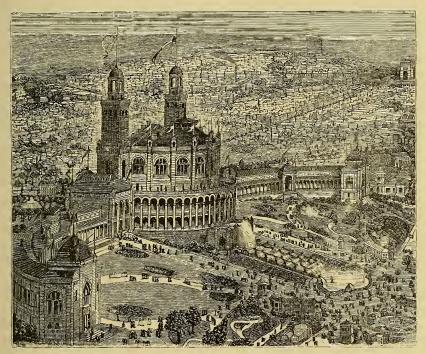
You will censure me if I take up more of your space in describing this wondrously bewitching structure.\* Your read-

<sup>\*</sup> Our readers will find a full description of the Trocadero and the Paris Exhibition in the August number of *Lippineott's Magazine*, to the publishers of which we are indebted for the beautiful engraving used herewith.—Ed. P. P.

ers will doubtless find a fuller and better one in some other of our magazines.

So far as photography is concerned, however (and that most concerns us), the Paris Exhibition has made no progress since 1876, except in some minor directions. Of course only two years have passed, but even then, after showing the world so good an example as we did in Philadelphia in 1876, I did not expect to see so thorough a going back on photography as is the case at Paris. At Philadelphia, photography was given a herculean lift upwards among

Building, Machinery Hall, Art Gallery, Agricultural Hall, Horticultural Hall, and Photographic Hall all put together covered. Moreover, instead of all being under one roof as our main building was, this is divided up into galleries and vestibules, avenues, etc., so that one, to see the whole, must keep his wits about him, and turn many corners. And after all my turning, having conscientiously devoted myself to our blessed art first, I confess to a good deal of disappointment, for collectively, the photographic exhibition is far behind that of



THE TROCADERO AND GARDENS. \*

the arts, by the erection for it of that noble *Photographic Hall* (thanks to you and those who helped you); in Paris, our art is reduced again to the ranks of mechanics and processes, and vast promising correspondents who want to tell the truth must roam over all the quarters of the globe (and they are many here) if they would see a tithe of the matters and things photographic on exhibition. You will understand the labor of this when I tell you that the main building here covers over 300,000 more square feet than our Main

1876, and very inferior to the one of 1873 at Vienna, which I also saw.

Moreover, there was no Adam Salomon here to lead us five years ahead. That was a disappointment. Doubtless the dear genial old man, whom I have not yet had time to see, but whom I saw in 1873, did not exhibit because he had not made any progress, and was waiting until he had. He is ahead of us yet, however. I hear it rumored that Madam Saloman has just died. She was a most enthusiastic lover of photography.

"Well, quit your growling," I hear you say, "and go on with the show."

Shall I be vain, and begin at home? No; but with France, out of courtesy.

I am sure that the French Photographic Society alone could make a better exhibition than this. Nearly every one seems to have feared lest they should be eclipsed again by some unexpected Salomon. The scare was groundless. Salomon does not exhibit; at least, I could not find that he did, and no one equals him. The novelties are scarce, the general work being only such as we have often seen before. In burnt-in enamels, a little progress as to size seems to have been made, as Walery shows one of twelve inches.

I was attracted much by some vignettes backed up with black, evidently on glass or glacé, by Le Jeune. They were very soft and pretty, and cannot be hard to make if good plate-glass is used. Some are quite large.

Lafon de Camarsac still maintains his supremacy for enamels; I see none better, and yet his are no better than they were years ago. Some excellent children's pictures are shown by M. Chambray, who makes the French babies look quite as cute and pretty as our American babies. It is an art and a gift surely. M. Franck's pictures thrill one a little, as did those of M. Salomon when they were first exhibited, and as they do yet, in-Yet M. Franck does not display quite that evidence of the master's hand that Salomon does. There is now more diving after rapidity than excellence, and it is diving, and nothing short, for the process is a long way from perfection and easy working. Our good friend Reutlinger is represented not only by a fine collection of his "publics," but by a splendidly wrought picture of himself. Disderi's successors, Messrs. Bacard and Delié, exhibit a fair display, and Mons. Liebert, an Americanized Parisian, together with Mons. Numa, Blanc, confine themselves specially to carbon work, in which no improvement has been made. Mr. Schreiber and Mr. Rau would enjoy the equestrian pictures of M. Delton. Braun's landscapes are always a feature in every exhibition, and Mons. Jules Girard shows the only collection I saw, I believe, of micro-Several photo-mechanical photographs. printing processes are shown in operation, among which are Messrs. Jeanrenaud & Guillot's, and M. Leon Vidal's. Woodbury printing is well represented by Goupil, Lemercier, Vidal, Blaire, of Tours (whose work I think the best), and two or three others. Vidal's work, as you know, is now simply the paper used in the Woodbury process, printed on in colors by chromo-lithography and then by the Woodburytype. Wherein his novelty consists, I cannot see. The fun of the matter is that Rousselon, Goupil's manager, comes before the French Society to say that Vidal's process was done by Woodbury many years ago, and he can prove it. Vidal, on the other hand, holds out that Rousselon's process of photogravure is not his, but Woodbury's. There is a good deal of truth in all and on both sides.

I must not forget to mention that Vidal has a pavilion where the Woodbury process is worked daily. It was always crowded when I passed, and I was astonished to see how even the work went, notwithstanding the heat and crowd in a small place. Some of the prints were 12 x 15. Of course the process used was called "photochromic of M. Vidal," though the work was pure and simple Woodburytype.

The English exhibition, I think I have seen beaten in Conduit Street, London. Messrs. Elliott & Fry's enlargements; Mr. Van der Weyde's pictures by electric light; Mr. Bedford's views; Mr. Vernon Heath's large landscapes, 36 x 39 inches; Mr. Robinson's always attractive pictures; Mr. Warnerke's excellent film-pictures on fabrics; Mr. Slingshy's one exquisite interior view of a room; Mr. England's always fine views; some others from Brighton (where Mayor Mayall lives), by Mr. Boucher; some very fine productions in carbon by the Autotype Company (strange there were no other such from London), and a few others, made up the disappointing British exhibition. Not forgetting, however, that king of landscape photographers, Payne Jennings. His work is superb, and if landscaping was more in vogue, he would go up on our shoulders, as Salomon did ten years ago. He is an artist Each one of his 10 x 12 in every sense. views is a wondrous master-piece.

Hare and Ross and Dallmeyer look after the apparatus and optical departments. Not-

man, of Montreal, exhibits a few of his compositions, new here perhaps, but not to us. No one else seems to do much in them.

Norway, Sweden, Spain, Italy, and a few other foreign countries made a feeble attempt to exhibit, but I saw no novelties among them. The Italian Government exhibited about one hundred very pretty views of buildings, which made me sigh to see Italy again. Some Hungarian pictures are superb.

And now we come to the United States department. What is shown here is not large in quantity, but generally is equal in quality to any photography on exhibition from any part of the world.

Joshua Smith, of Chicago, has made a hit with the frame of babies he sends. Every one looks at them, every one—kings, queens, and shahs—stop and laugh at them. They are grotesque, sweet, and good.

Landy (the *only* one of Cincinnati) exhibits his series of "The Seven Ages of Man," which we all know.

Sarony's display is "the same yesterday, to-day, and forever." Cannot he turn around some fresh ludicrous wriggles?

Weston, of San Francisco, exhibits some "crystal scallops," and doubtless is trying to sell the patent to the Parisians. They are pretty.

Theodore Gubelman, of Jersey City, shows some of his peculiar pictures, well known to you.

Mr. J. Beal, of New York, is represented by an immense panorama of New York, copied on several separate sheets.

Mr. J. Gurney exhibits colored and varnished cabinet pictures, under the heading of "indelible souvenirs." They are remarkable on account of their delicacy and liveliness, though the colors could be a little stronger.

Mr. Edward L. Wilson exhibits some remarkable interior and exterior views of the Philadelphia Exhibition; and for your comfort let me say, there are none such in this Exhibition.

Mr. F. Gutekunst exhibits three great portraits, on plain paper; they are really nice. The retoucher merits especially to be praised. His panoramic view of the Philadelphia Exhibition is also here.

Mr. L. W. Seavey exhibits backgrounds.

The idea of bringing such things to Europe! And yet he does a large business here. Ten years ago we looked over here for ideas.

I believe I have not missed any one from home. If I have, I will correct it on hearing from you. I had hoped to have sent you a list of the awards, but I cannot. Judges are slow, and we must wait a month or more yet. Mr. Jules Simon is the President of Group XII, and Mr. Davanne is on the jury. The rest are probably unknown in America.

And now about the great photographic banquet, and then I close.

The banquet given by the French Photographic Society and Syndical Chambrè of Photography, to the foreign judges, Class XII, was held on the 9th of July, in the magnificent parlors of the Continental Hotel, at Paris.

This fraternal feast was a great success; the guests being numerons, and a thorough cordiality pervading the entertainment, which will remain a long time in the memory of those who are interested in the new art.

There were about one hundred guests present, including all the notabilities of the photographic world, professional and amateur. Here I met many old Continental friends, among whom the greatest is Fritz Luckhardt, of Vienna, good fellow.

Interesting speeches were made by Mr. Peligot, President of the French Photographic Society, Mr. Berthaud, President of the Syndical Chamber, Mr. Davanne, Chairman of the Photographic Class, Mr. Jules Simon, Chairman of the Group, and several others.

The bill of fare had been most artistically done by Mr. D. Hutinet, whose fine cardmounts are known everywhere, and presented by him.

The menu was of the most recherche character, and consisted of—

Printanier a la Royale.—Saint Germain au croûton.

#### Hors-D'ŒUVRE VARIES.

Releves.—Turbot sauce hollandaise et sauce crevettes. Filet de bœuf à la dauphine.

Entrees. — Poulardes à la régence aux truffes. Croustade de nouilles à la polonaise, Escalope de homard à la russe.

SORBETS AU KIRSCH.

Rots.—Canetons de Rouen au creson. Pain de foie gras à la gelée.

#### SALADE.

Entremets.—Haricots verts sautés à l'anglaise. Madeleine glacée à la romaine. Gâteau punch au marasquin. Pièces de pătisserie sur socles.

#### DESSERT.

Vins.—Xérès. Bordeaux en carafe. Saint Julien. Sauterne. Pommery, 1874.

While recalling the services of Niepce, Daguerre, and Talbot, the name of Poitevin was not forgotten. His memory was in every heart, his name in every mouth, and thanks to a happy idea of Messrs. Provost and Berthaud, his picture in every pocket.

This homage was due to one to whom is owed the permanence of the photographic image and rapidity in its production; and for his works on helioplasty, photo-engraving, and carbon printing, the applications of which allow the diffusion of so many works of art and the discoveries of science.

I had the pleasure of several times seeing your friend and correspondent, Prof. Stebbing. He has not written to you for some months, owing partly to ill-health, and partly to a series of misfortunes which occurred at his home, caused by the carelessness of workmen who were making alterations at his house; portions of it were several times flooded with water, spoiling furniture, carpets, etc.; possibly worst of all, afterwards, the floors were loaded with plaster, stone, and bricks until they all fell in, burying the valuable library and books, and most shockingly destroying them. Such a loss cannot easily be repaired. Now, however, the Professor is actively at work again.

I send you herewith a couple of dozen cabinet pictures of the Exhibition. They will disappoint you, after what you yourself have done at Philadelphia in 1876, but they are the very best I can get.

Everybody photographs here who may be able to fulfil the conditions of the managers, and any exhibitor can employ his own photographer. This looks to be the most fair way to the French photographers, but it is unfair to the public; for "what is everybody's business is nobody's," and the result

will be, that this grand Exhibition will go down to posterity without being well photographed.

Why is this thus? you say. Rumor whispers that there was no photographer in France with pluck enough to undertake the work alone, and the Commission wouldn't allow a foreigner to have it exclusively. So things are thus, and the English and French have it together, mainly.

Dry and emulsion plates are used largely, and those I send you are from such.

Mr. J. Levy, of course, is making a large and systematic collection for lantern slides. These will be fine, and you will see them.

And now a joke on me and my duty is done. I was arrested by the French police for being a counterfeiter—"Ze grate fellow from Amerique." I pleaded guilty, and was about to be sentenced, when I made out to explain that I only counterfeited the human face divine, when I was let off, and here I am. Perhaps more again next month.

Always yours, in silver and gold,

, Dan

Paris, August 3d, 1878.

#### GERMAN CORRESPONDENCE.

The Anilin Process in Germany—New Photographic Optical Patent—Utilization of Old Collodion—Captain Abney's Observations.

I TERMINATED my last correspondence with a few notes about the application of peroxide of iron to photographic purposes in general, and particularly for making tracings by means of light. I mentioned that the method described requires three times the exposure of the silver process. This fact makes the process evidently a failure. The old anilin process, invented by Willis in 1864, has lately become more and more popular. It has the advantage of making directly from a positive original a positive picture. The sensitizing substance is composed as follows:

Saturated Solution of Bichromate of

Paper is sensitized with it, dried, and finally exposed in a printing-frame under a picture similar to the positive silver process

with a glass negative. The sensitive substance will be reduced on all parts where light strikes it, whilst the parts which were protected by the non-actinic lines remain These parts contain chromie acid in a free state, and we will have a yellowish picture on a green ground. Exposed to anilin vapors the picture grows dark. The resulting color is fast, and it is sufficient to wash the print in water in order to fix it. Pictures thus produced have the disadvantage of being reversed, unless the original is on such thin paper that, without detriment to the sharpness of the print, the original can be put with its reversed side in contact with the sensitized paper. Hoppe, ingénieur, of Berlin, has succeeded in producing also copies of drawings on this paper, in right position, by preparing a thin sensitive paper and putting the latter with its reversed side on the right side of the drawing. The light has to pass through the tracing-paper before it reaches the sensitive fibre. Since it is very difficult in this process to control the exposure with the eye, Mr. Hoppe uses my photometre, and extends the exposure until it has reached sixteen degrees. The longer he copies, the weaker the picture will be. The light loses much of its intensity whilst passing through the drawing-paper. In order to eliminate this factor, Hoppe covers the photometre with an equal piece of paper, and weakens thus the light on its way to the photometre in the same proportions as it is weakened in passing through the drawing. Hoppe has reached an immense patronage, and produces thousands of pictures with an irreprehensible finish.

An optical invention for the production of stereoscopic pictures in one single picture, taken with one single lens, has recently been patented, and applications for other patents are made in foreign countries, probably also in America. The whole of it represents nothing new, and eonsists in a great illusion, to which so-called inventors, without the necessary scientific judgment, are unfortunately too often subjected. The inventor recommends to take a large enough lens as to be capable to take in a stop with two holes instead of one hole in the centre. There is something true about it. For instance,

the right edge of a four-inch-focus lens will always be a little more to the right side of the observer, and the left edge will always be a little more to the left side. If now first the one side of the lens is covered, then the other, and successively two pictures taken, these pictures will show the roundness of the object if placed in a proper manner in the stereoscope; but it is a great mistake to believe that one picture taken with one lens in which the centre is covered and small portions left open on the edges, is more stereoscopic than any other. On the contrary, this arrangement will produce a pretty good stereoscopic effect on the ground-glass plate, but the finished picture, however, is not in the least more stereoscopic than all others, and has besides the great disadvantage of showing double outlines. I observed this seven years ago, and have also tried my best to convince the inventor of the insignificance of his invention. He seems, however, to believe more in his own judgment than in mine, and forgets that, even if his observations were right, the invention would not be of any particular advantage to photographers, as, in stopping off the centre of the lens, the light becomes so weak on the plate, and the exposure proportionally longer, that it is not any more practicable for portrait work. He now offers his new invention for thirty marks (about seven dollars) to our photographers. How much he will ask in England and America has not yet been revealed to me,

There is no doubt that every photographer has experienced that his collodion turns red, and the question has often been brought before meetings, etc., how the old collodion might be turned into money. Many photographers mix it with new collodion, and thus sacrifice a great deal of the sensitiveness of the same; others use it for cleaning plates where the better would use ammonia. It has been proposed to regain the alcohol and ether from the same, but it would always be impure with acetic acid; besides, it would not pay. A simple way of using it must be welcome, I should say. I use it instead of the alcohol in the developer. After the sulphate of iron is diluted, the old collodion is added instead of alcohol. The eotton precipitates and is filtered off. The

small quantity of iodizing salts which the developer will contain now, will not do a particle of harm. It cannot, however, be disputed that a certain quantity of iodide of silver will be precipitated; but this is very little. The most of the collodions contain about one and a half per cent. iodine or bromine salt. Suppose we had iodide of potassium. One part of the same will precipitate one part of nitrate of silver. There are added to one hundred cubic centimeters of developer about three cubic centimetres of alcohol, or, as I proposed, old collodion, which will now contain in three cubic centimeters about .045 gramme of iodide of potassium. One hundred cubic centimetres of developer are sufficient for the development of one card-size plate, on which adhere about 5.55 cubic centimeters of silver bath, the usual strength of the latter being 1:10. Thus 5.55 cubic centimetres silver bath contain .555 gramme of nitrate of silver, which is about twelve times the quantity of the iodide of potassium in the developer. This example shows that there is always ample silver for a sufficient development.

Lately I heard that there is quite a number of English gentlemen who have gone to America in order to make observations of the solar eclipse; Captain Abney, Lockyer, and Roscoe, among the rest. I hope the weather is favorable enough for their observations, and to make a picture of the spectrum of the corona, in which they did not succeed in 1874, on account of bad weather. If anything can be done in this line, Captain Abney is the man to execute it. We owe to him many valuable results in spectrum photography. Recently he has studied my observations about the influence of dyes on bromide-of-silver. His experiments guided him to results which enable him to give an explanation for the action of the dyes. A bromide-of-silver film dyed with eosin, is very sensitive for the yellowish-green rays of the spectrum. Abney colored for his experiments a plain collodion with eosin, and exposed it in the spectrum. The eosin suffered a remarkable change by the yellowishgreen rays, which it absorbed. This change was all the more visible when Captain Abney coated the exposed plate with bromideof-silver emulsion, and developed it with an

alkaline developer (without previous exposure of the emulsion). The bromide of silver became black in all parts where the yellowgreen rays had acted upon the eosin. More effectual still was the result with cyanin. Captain Abney now concluded that the dye must have been reduced first by light, and finally acts also, reducing on the bromide of silver, or, better, that the particles of the altered compound may have the property of acting as nuclei, to which the reduced silver compound may be attracted when development is carried out. Thus he explained the action of the dyes. However I may be indebted to Captain Abney's results, I do not think his explanations are altogether right. This experiment is only a success by long exposure. Abney says himself: "I may remark that the dye in a dyed bromide-of-silver film is more amenable to the action of light than when experimented with as I did, because the surface of the dye exposed is much greater in the one case than in the other." I absolutely cannot understand why the surface in the one case should be greater than in the other, and I do not think that his explanation can stand the test. I would like to call particular attention to my former observations, which are also stated to be right by Captain Abney: that the dye is non-effective in the presence of an excess of soluble bromide in the bromide-of-Captain Abney says: "The silver film. ordinary bromide-of-silver plate is not developable when an excess of bromide is allowed to remain in the film." In reply to this, I would like to say that the presence of a trifle of soluble bromide (for instance, the quantity of bromide which is generally used for the development of bromide-of-silver dry plates), is sufficient to render the dye non-effective. I also have proven that those plates regain their sensitiveness for the dye by coating the same with morphin, tannin, or pyro. It follows, therefore, that a dyed and exposed plain collodion, coated with bromide-of-silver emulsion containing a slight excess of soluble bromide and pyro, had to show the action of the dye, if Captain Abney's explanations were right; but this does not take place. Only if a dyed bromide film (with an excess of soluble bromide) is exposed together with the dye, is the

action visible. I maintain, therefore, my old standpoint. It is a fact that a chemical reaction of certain rays can take place when the same are absorbed by the sensitive substance. Red and yellow rays are but slightly absorbed by bromide of silver, and consequently their action is also slight, though there is an action, which is proven by the fact that I have obtained a picture of the whole spectrum on a pure bromide-of-silver film by means of long exposure. I infer therefore that, if the absorption of certain rays can be artificially augmented, consequently, also, the chemical reaction of the same are augmented. I added dyes, and found my reflections verified. If one should ask now, what has become of the light absorbed by the dye, I reply that the vibrations of the ether are transported to the molecules of the absorbing substance, which is here the dye. If the velocity of the molecules is great enough, they will split; that is to say, a chemical decomposition takes place. It is known that a chemical decomposition is accelerated in presence of a body which can form a new composition with the resulting parts of the decomposed body. The decomposition is therefore all the more effectual in presence of those bodies which we call in photography "sensitizers." Abnev's observations, according to my views, apply only to special cases, a phenomenon of secondary nature which may occur with dyes of great sensitiveness and with long exposures; a phenomenon with which it is impossible to explain the action on dyed bromide of silver by short exposures, and especially in presence of morphin or tannin.

Truly yours, H. Vogel. Berlin, July 30, 1878.

M. CHEVREUL, in a paper in Compte's Rendus, comes forward in support of the optical principles of Newton, and in opposition to the false hypothesis recently advanced by various scientists, that the fundamental colors are red, green, and violet; yellow being formed of red and green, and blue of violet and purple. The author's experiments sufficiently prove to him that the late views are absolutely false.

It has been a good season for dry plates.

#### FRENCH CORRESPONDENCE.

The Exhibition—The Banquet of the Photographic Society—The August Meeting of the Society—Proofs of Exhibition, by Mons. Levy—Communication by Mons. Fabre on Emulsions—Mons. Balagny's Negative made by a Modified Formula of the Chardon Process—His Formula—Large Print of the Members of the Jury, by Mons. Franck—Mons. Liebert's Third Edition of Photographie en Amerique, now out—Artistic Prints of Mr. Mieusement—Gelatino-Bromide Emulsions, by Mr. Palmer—Mr. Henderson's Enamel Process—Formula for a Rapid Negative Bath.

I AVING been deprived by circumstances from communicating with the readers of the Philadelphia Photographer, I gladly take up my pen once more to write upon photographic subjects. For the last three months the Exhibition has absorbed to itself the greater part of the energies and time of inventors and exhibitors. That splendid field for fame has brought to Paris many foreign photographers. I have been, and shall always be, most happy to receive any of my readers who pass through this gay city. The Photographic Society of France has not been backward for the first time since its formation, and in honor of the Exhibition it gave a magnificent banquet to the jury, at the same time invited all foreigners of note in the photographic art who were present in Paris. This banquet obtained such success that it is almost certain it will be renewed from time to time.

The Photographic Society of France held its monthly meeting on Friday evening, the 2d inst., Mons. Davanne in the chair. A collection of very fine proofs of the Exhibition, by Mons. Levy, was passed around to the members, who were unanimous in their praise. Mons. Fabre sent a communication to the Society on emulsions, in which he counsels the use of nitrate of uranium.

Mons. Balagny, one of our principal amateurs, and who has had great success with the emulsion process ("a modification of Mons. Chardon's process," as he says), presented some very superior negatives of the Exhibition, made by his emulsion. This gentleman was kind enough to give me his

formula for the readers of the *Philadelphia Photographer*.

He dissolves 27 grammes of precipitated cotton (composed of 18 grammes of pulvurulent and 9 of resistant), in 300 centimetres of alcohol, in which has previously been dissolved 27 grains of bromide of cadmium; 600 centimetres of ether are then added, and well shaken. This bromized collodion is allowed to remain a few days to settle; 150 centimetres are then decanted into a clean quart bottle;  $7\frac{1}{10}$  grains of silver nitrate are then weighed out into a glass ball-bottle; sufficient distilled water to cover the silver salt is then added. The ball-bottle is then heated over a spirit-lamp or a bunsen burner until the nitrate is completely dissolved, then 25 centimetres of alcohol are added little by little, heating each time; the solution while hot is poured, little by little, into the bromized collodion, and kept in constant agitation. After having been allowed to remain about 24 hours it is then analyzed; a very slight excess of silver is necessary. silver is then transformed into chloride by adding a quantum sufficit of solution of bromide of cobalt.

Mons. Balagny keeps it to ripen for a few hours, and then precipitates it in hot water; the precipitate is dissolved in the ordinary way, in half alcohol and half ether. The negatives made with this emulsion were dense, brilliant, and, above all, void of pinholes.

Mons. Franck de Villecholle, our sympathetic colleague, exhibited to the Society a magnificent proof, ten by twelve, of all the members of the jury, grouped in a very artistic manner. Mons. Franck is not only an old-established photographer, but a gentleman who endeavors to do all he can to bring to light any new dodge, invention, or idea, likely to be of use to the photographic art; he freely offers his studio, his laboratories, and even his chemicals, to experimenters, to enable them to attain the end they seek (I myself have to thank him for the courtesy shown to many American and English artists who have desired a letter of presentation from me, in order to be admitted to visit a French studio); they have always been unanimous in saying that everything has been done to give them information, as well as a friendly reception. The same remark holds good of other Parisian photographers; I may mention Mons. Joliot and Mons. Liebert, the description of whose studio I gave in a former letter. This well-known artist and author has just finished his third edition entitled *Photographie en Amerique*. This work has had great success, I myself being unable to obtain a copy for one of my pupils; it is said that the edition is very complete, full of engravings and specimens of new processes; Mons. Liebert made a present of a volume to the Photographic Society of France; a vote of thanks was awarded.

Mons. Mieusement, of Blois, presented the Society with a large number of proofs, being a collection of all the historical monuments relating to the history of France; the proofs, alas! were made with silver salts upon albumenized paper, and made the same sorrowful impression upon me as the present Exhibition, when I look upon its beauties, and think that it is doomed to destruction.

Three or four magnificent landscapes from Rio de Janeiro were then passed round; the members congratulated the artist, and expressed their pleasure that the photographic art was so well represented, and had made such progress in countries far away from its birthplace. In fact the Photographic Society of France feel a legitimate, and I may say a national pride, whenever progress is made in an art which was born and fostered, the secret bought and freely given to the world by the French nation.

Mr. Palmer, the well-known English experimentalist, sent a communication to the French Society, through Mr. Harrison, on gelatino-bromide emulsions. I know not why this process has met with little favor up to the present in France.

Mr. Henderson, the celebrated photographic enameller, of London, was present at the last meeting of the Society, and was cordially welcomed to France. During his sojourn in Paris, Mr. H. made several demonstrations at my house of his photoenamel process. I was enchanted with the ease and certainty of the manipulation. I believe that Mr. Henderson will sell licenses to work his process; if so, enamelling will

be the work of the future, for who will not prefer those charming, and above all, permanent productions, when they can be had at a reasonable price at every photographer's? The rapidity with which enamels are made by that gentleman is something astonishing. I have made for many years enamels by what I believe is called the dusting-on process; that is to say, a mixture is spread upon a plate of glass, which will become more or less hygroscopie in proportion to the quantity of light allowed to fall upon it through the positive. A metallic oxide, ground up with finely powdered glass, is then dusted on its surface; naturally the enamel powder sticks more or less to the different parts, according to the amount of damp absorbed by the film, and so forms the picture. A coating of collodion is then poured over, and the image is placed upon the enamel plate, and then burned in; the metallic oxide giving the color, and the glass the glaze. But this process is surrounded by so many difficulties and uncertainties that a cheap article cannot be obtained by its means; the least change in the temperature from hot to cold, from damp to dry, will tantalize the manipulator, and make success uncertain. Not so with Mr. Henderson's system. A positive is made in the ordinary way in the camera, or by contact with dry plates; this positive is then iodized and plunged into what he calls the depositing solution; the action of this depositing-solution is precisely similar to that of the dusting-on process, and goes on slowly and surely without any trouble and fatigue on the part of the operator. I have seen a dozen made at a time, and not one spoiled; in fact any photographer with an ordinary intelligence can become a first-class enameller, such is the perfection to which Mr. Henderson has brought his process.

During the sojourn of Mr. Henderson in Paris, an occasion was offered for a comparative trial of his negative process against a secret one then in the market for sale. As, in the opinion of all present, Mr. Henderson's was equal, if not superior, to the one on sale, I asked that gent to give me the formula for my readers of the *Philadelphia Photographer*; he kindly did so, saying at the same time, "he made no secret of it."

A few drops of nitric acid, sufficient to render the bath slightly acid.

#### Developer.

Sulphate of	of Iro	n,				29	grains.	
Acetic Ac	id,					20	drops.	
Acetate of	Lead	(Sug	ar of	Lead	l),	3	grains.	
Water.						- 1	ounce.	

Put a filter in a clean funnel, and fill it a quarter full with boric acid, filter the developer always through it; the solution will take up the necessary quantity of boric acid; the filter and boric acid will last a very long time.

If any photographer on the other side of the Atlantic catches a wrinkle by this, all I hope is to be pardoned for my long silence.

PROF. E. STEBBING.

27 Rue des Appenines, Paris.

# DR. VOGEL'S HANDBOOK OF PHOTOGRAPHY.

COPY has been sent us (in German) of Prof. Dr. Vogel's Handbook of Photography, third edition. It is a real witness for the immense progress photography has made during the short time of its existence. The first edition of his excellent work appeared eight years ago, representing the standpoint of photography at that time, and was translated and published by us, and largely sold, and continues to be sold. The second edition followed about three years ago, and now that the third edition has been required so shortly after this, is not only a proof of the excellence of the work, but also of its reliability and necessity, even in the hands of those who are ambitious enough to try to make their enterprise a success. Dr. Vogel's Handbook gives everything; Theory, Practice, and Æsthetics, are treated with equal clearness and understand-

Every one of these three principal departments are more or less necessary for every photographic student. The artisan will find in the practical part all the material he wants. It is a compendium of itself. The investigator, not satisfied with the success which he has acquired mechanically by a repeated use of his apparatus and chemicals, will find all scientific instruction on photographic chemistry and photographic optics in the first part.

The third part is composed of twelve chapters, and treats exclusively the philosophy of the fine art of photography. It is much to be regretted that, with the exception of Dr. Vogel, almost all other authors have treated this part but lightly and indifferently. They have mostly limited themselves to giving a summary of chemical formulæ, and reactions, and mechanical manipulations.

After the development which photography has reached in our days, it is quite natural that the efforts of photographers should be directed more or less towards making a master-piece of each and every sitting. Many of our photographers have some latent talent for operating, and taste for posing; however they study the most simple parts only year after year. Why should they not study the most important one?

Not everybody is an artist by birth. The taste must be developed, in order to render the subjects as they are, with all vivacity and character. It is impossible to be a good photographer without being an artist, or, at least, having a fair understanding of art principles, and it is just as necessary that a chapter treating of the art of-photography should occupy a space alongside of theory and practice, in every book on photography which claims to be a perfect compendium on this subject.

It is impossible to give here a critical review of every chapter; in consideration of the reputation already established by Dr. Vogel, it would be uncalled for. We therefore confine ourselves to pointing out some remarkable changes, according to the present standpoint of our art.

The chapter about photographic chemistry in general, and particularly the one about the chromates, is a model of literary creation. The study of silver salts may be regarded as exhausted. Measuring of light is abridged according to the present standpoint, and practice and theory are always just in comparison.

The theoretical part has undergone many

changes, in the same measure as photography has progressed. Some processes have grown old. Those are left out, and others have taken their place. The carbon process, which is treated in former editions as a secondary process, occupies more attention now. The new collodions, iodizing, developing, and strengthening salts, are considered with special regard to Dr. Elder's researches. The old dry-plate processes are left out in order to make room for the emulsion process.

Some new discoveries, made whilst the work was in press, *vide* Obernetter's reversed negative process, photography in natural colors, etc., have not been neglected, as they are added in form of a supplement.

There is nothing forgotten in this work, and we cannot too highly recommend it to those who seriously practice our lovely art. We congratulate our friend on his success, and wish that the new edition may soon be exhausted.

#### SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILA-DELPHIA.—The stated meeting of the Society was held on Thursday evening, June 6th, 1878; Vice-President Mr. John Carbutt, in the chair.

After reading the minutes of the last meeting, Mr. McCollin presented the minutes of the excursion party, which were read, and, on motion, ordered to be recorded in the minute-book.

Mr. Fox moved that a report of the trip be published in pamphlet form, under the auspices of the Society, the expense to be borne by private subscription. This motion was carried.

The Chairman suggested that the printed report be illustrated with the prize picture.

Mr. Barrington, Chairman of the Committee on Out-door Meetings, reported that the total expense to each member of the excursion party was \$12.75.

A cordial vote of thanks was given to Mr. Barrington for his efforts to make the excursion a success.

Mr. Browne suggested the propriety of appointing a committee to decide upon the merits of the prints presented for competition, instead of awarding the prize by vote of the excursion party, as originally arranged. As there was some opposition to this, the matter was dropped.

On motion, an adjourned meeting of the Society was fixed for the third Thursday in June. The meeting was then, on motion, adjourned.

An adjourned meeting of the Society was held on Thursday evening, June 20th. In the absence of the officers, Mr. Hewitt was called to the chair.

The Corresponding Secretary called attention to a communication from M. Liebert, of Paris, presenting the Society with a copy of his late work upon photography.

A vote of thanks was tendered to M. Liebert for the donation.

On motion, Mr. McCollin was appointed to superintend the publication of the report of the excursion.

Mr. Moran proposed Mr. Albert S. Barker for membership.

Mr. Browne exhibited a number of excellent negatives made with Mr. McCollin's emulsion.

Dr. Seiler remarked that a valuable comparative test of the rapidity of emulsions could be made by exposing under a graduated plate, similar to those used in actinometres.

Mr. Browne moved that the Chair appoint a committee to decide the question of excellence in the prints entered for competition. The motion being carried, the Chair appointed Messrs. Moran, Fassitt, and Gilbert.

After an intermission, during which the Committee examined the prints, the meeting was called to order, and the Committee reported that in their judgment the prize should be awarded to Mr. William Hacker. The Chairman of the Committee said, "that regarded as a chemical result, a print by Mr. Barrington was unexcelled, but unfortunately its beauty as a picture was marred by the wind."

The meeting was then adjourned until the first Thursday in October.

D. Anson Partridge, Recording Secretary.



Questions.

What is the most expeditious way to clean white metal show-cases that hang out of doors, and become stained by rain, snow, fly-specks, etc.?

Ditto to clean lime sediment from glass or metal?

Ditto to clean rusty glass, and negative plates that have been in potash (Babbet's concentrated lye), but have become dry by the solution evaporating? I find I cannot do it by resubmersion in the lye, subsequent washing, or treating with acid.

Ditto to clean developer bottles?

Ditto to clean hypo bottles, with silver clinging to the sides?

Ditto to clean toning bottles, with gold and silver clinging to the sides?

Ditto to clean collodion bottles?

Give a simple test by which gold or silver can be detected in any of the solutions common to the printing-room, such as hypo, toning, etc., and if both metals are found, an easy way to separate them.

Is there any objection to letting pyro acid fall into the developing sink?

Ditto in throwing eyanide and hypo fixing-solutions together, from which eventually to recover silver; if so, what?

Have any of your readers experience in restoring old, yellow, mildewed manuscripts, the writing of which has about faded out, so as to bring the ink out bright enough to be photographed? I have such a job to do, and would like to know the best way to do it, and also the best way to make the restored writing remain permanently. Give the whole modus operandi. What the August Philadelphia Photographer says on this subject is not clear or explicit enough. In replying, please do not refer to works

I do not possess. It will be in order, however, to refer to the *Philadelphia Photographer* from 1866 to 1878; the *Photographic World* for 1871 and 1872; *Mosaics* for 1870, 1871, 1872, 1874, 1875, 1877, and 1878; Carey Lea's *Manual of Photography*, first edition; Anderson's *Skylight and Darkroom*; Vogel's *Pocket Reference-book*, first edition, or *Reducer's Manual*, all of which I possess.

#### ANOTHER GOLD MEDAL,

FOR HOME AND FOREIGN COMPETITION.

WE beg to announce our offer of another Gold Medal for the best six negatives of a lady or ladies, sent us from abroad or home, by November 15th, 1878, and to invite photographers everywhere to compete.

We leave choice of position, the matter of retouching, and the process worked, to the competitor. The Medal will be awarded for the *best*, without contingencies.

We especially desire that some foreign competitor shall carry off this prize. It is a large, pure Gold Medal, intrinsically worth about one hundred dollars in gold, and is worth trying for.

Our conditions are, that the negatives shall be sent to Edward L. Wilson, office of the *Philadelphia Photographer*, Philadelphia, Pa., U. S. A., so as to reach here, free of expense, by November 15th.

The subjects chosen are to be of ladies.

The negatives are to be submitted to a jury of three, and they shall make the award.

The medal is made, and there will be no delay in forwarding it. We hope for an extended competition among our subscribers, at home and abroad.

Each accepted competitor will receive a print free, from one negative of each compeer.

The jury reserve the right to discard any offering found unworthy.

THE Danish town of Horsen shipped two million eggs to England last year, and pancakes have gone out of fashion in Denmark, where the price of eggs has advanced sixfold in the last few years, in consequence of the foreign demand. Photography did it.

#### PHOTOGRAPHIC NEWS.

A N unsuspected cause of fading in carbon prints, has been found by Mr. J. G. Tunney, the eminent photographer of Edinburgh, thus adding one more brake to carbon progress. It has had a hard time of it, surely, and does not seem any more likely than ever to make good its boast that it will "supersede silver printing." Dr. Nicol describes the "new cause" in the British Journal briefly as follows:

"During the already-mentioned visit to Mr. Tunney, that gentleman showed me a series of specimens, the result of a number of experiments he had for some time been making, which established beyond doubt the fact, that prints as made at the present time, even with absolutely permanent pigments, and in which no trace of the exciting chromium salt has been left, are affected by the light to such an extent that the whites become brown, and the purity and brilliancy The specimens included are destroyed. prints on tissue made by himself, as well as that supplied by the Autotype Company, and also prints the Company had sent him.

"The half of each print had been exposed to light about fifteen days, and while the protected half had retained its purity and whiteness, the exposed portion had lost much of its beauty and become a dirty brown, easily noticed in the whites by reflected light, and very distinct all over when examined as a transparency. After much trouble and many experiments, the fault was traced to the transfer-paper, and Mr. Tunney exhibited several pieces of it, both for single and double transfer, that had been exposed in a similar way, and on every one of which the same degradation of tone was painfully visible."

A LA HORSE.—In "Art Jottings" (San Francisco News letter) we find the following sum of wisdom on that "lightning" horse feat. Mr. Muybridge should have had the Lambert-Anthony "Lightning" mixtures in use then. Well, shall we doubt if it would have been any different with him?

"About the only interesting event of the week, has been Mr. Muybridge's exhibitions of "The Horse in Motion," at the Art Association Gallery, on Monday and Wedness-

day evenings. The last one will be to-night. A great noise has been made about the wonderful success of Mr. Muybridge's experiments in photography, and to hear the operator himself expatiating upon the extraordinary skill necessary to the successful taking of the pictures, any one not familiar with photography would infer that Mr. Muybridge had discovered something in the direction of a new process enabling him to execute a photograph of an object moving at the rate of a mile in 1.40 or 2.20. That this feat is nothing new can well be imagined, when it is known that the projectile thrown from a cannon was successfully taken in transit at least fifteen years ago. Muybridge asserts, among other things, that he has discovered the fact, heretofore in disnute, that all four of the horse's feet, while trotting, are off the ground at the same time, or, as he in his lecture often remarks, "flying in mid-air." Mr. Muybridge's assertion is the first intimation we have ever heard in support of the fallacy of which he himself must be the author. He says George Wilkes has advanced this opinion, and scouts any other. Then George Wilkes must either never have seen a horse trot, or he has deficient eyesight, for that all four of any horse's feet are off the ground at one and the same time, in trotting, can plainly be seen by any one. Mr. Muybridge severely criticizes the form adopted by painters in portraying the trotting-horse; and yet most of these pictures show a trotter as Muybridge does, literally flying in mid-air.

"As to the particular angle of horses' legs in trotting, it is nonsense to judge all by one. Occident may throw his right fore-leg at one angle, and Dexter at another, and so on. Horses have no rules of motion which are infallible any more than persons. Mr. Muybridge's experiments in instantaneous photography, as applied to the runninghorse, are less successful even than the trotters, for such looking objects as he makes them appear while in motion are a sight to look upon, and how any one can pretend that they are anything but distorted earieatures seems strange. A reasonably sharp eye can at any time be pitted against any such instruments in judging of the appearance of a horse while running. Mr. Muybridge was constantly reminding us of what his photographs showed, etc. Now, we think that his representations of the running-horse show that if the process is so inaccurate as to render it impossible to tell if some portion of the animal and his rider be not a scare-crow, then the delineation of the motions and positions, if equally erroneous, must be entirely valueless as authority."

AT a meeting of the Liverpool Amateur Society, a rather interesting fact was brought to notice, and which we will make known in a few words. Mr. W. E. Potter showed to the society two positive prints obtained from the same negative. One of these prints is very bad; the other is very good. The cause of this anomaly is plain. The negative had first been covered with a varnish which deprived it of too many of its good qualities, and allowed only the production of very bad, weak positives. Alcohol was now taken, heated by placing the bottle that contains it in a vessel of very hot water, and this hot alcohol was then repeatedly poured over the negative, until the varnish was completely removed. This precise moment is known when a few drops of the alcoholic liquid, last used, produce no milkiness when falling into cold water. When the negative is yet wet, after this treatment, it is covered with pyrogallic acid containing a little nitrate of silver, as usual, to strengthen it. The positives obtained after this treatment are much better; in fact, they may be called very good.

Mr. Barker has expressed the opinion that the deterioration of silver prints is due in a great measure to the paper, which time injuriously affects. Paper already old, before receiving the albumen coating, is, he says, more apt to spoil, and a trace of hyposulphite which remains (if the fixing has been perfect), prevents this deterioration. He brings some experiments to strengthen his opinion, from which it appears that paper newly made, albumenized soon after its manufacture, printed under a rather dense negative, and the print obtained being perfectly fixed, will not deteriorate with age, especially if, after fixing, a trace of hyposulphite is allowed to remain, as this, he says, prevents the slow rotting of the paper.

## Editor's Table.

PHILADELPHIA CARD ENVELOPE.—One of the most interesting evidences of a development in photography now lies before us, in the form of an album containing samples of card envelopes; in this collection we find forty-five varieties, varying from the simplest to the most elaborate styles.

These envelopes were first invented some years ago by an employee of a leading Philadelphia photographer, for their own private use. They were patented after a time, and now their manufacture has grown into quite an industry, and takes its own place among the trades, employing quite a large number of hands, and various kinds of machines.

PICTURES RECEIVED.—We have just received from Mr. FREDERICK E. IVES, Ithaca, N. Y., several pictures of interiors and exteriors; the interiors were almost exclusively lighted from the windows, and yet they are clear, sharp, and perfect in detail throughout. One is of a church, and the light all came through stained-glass windows, and this is remarkably clear. Another is an interior of a machine-shop, with six windows in the background, from which the lighting was obtained, and every detail stands out perfectly clear. Mr. IVES certainly has made a success of photographing interiors.

Mr. Julius Hall, of Great Barrington, Mass., sends us some specimens of his best work; some card and cabinet portraits of children and grown-persons, some of the latter in costume, also a a group. Mr. Hall still continues to improve in his work.

In the last number of Dr. Vogel's magazine was a picture printed in Munich, by Obernetter; and though the negative was made in Berlin by Schaarwachter, we find in it one of those artistic backgrounds made by our friend Mr. Seavey, of New York. Mr. Seavey is now in Europe, and is creating quite an excitement among the old-world photographers by his beautiful backgrounds.

From the Centennial Photographic Co., of Philadelphia, we have some excellent pictures of those highly amusing little animals, the Chimpanzees, the latest addition to the Philadelphia Zoological Garden. The Chimpanzees are supposed to be "the missing link" between the brute and human race; there is certainly much in their actions that seems very human; they make very docile

photographic subjects, as was proved by our patient photographer, who secured a number of very comical positions; such as drinking from a cup, being fed with a spoon, and the male and female sitting together as Adam and Eve. Copies for sale, and agents wanted in any district where doubts are entertained as to these being the long-sought connecting link between man and beast.

Mr. D. C. Pratt, of Aurora, Ill., sends a stereoscopic view of the partial eclipse of the sun as it appeared at Aurora. It is very prettily taken, and makes a most interesting picture when viewed through the 'scope.

Mr. A. B. Comstock, Waverly, N. Y., sends us two cabinet photographs, specimens of his best work. The lighting is very good, and general effect pleasing. We congratulate him on being able to turn out such good work.

"Souvenirs." - Almost every photographer and picture-dealer is familiar with those little articles called "Souvenirs," a sort of little pocket album, the pictures, in imitation of photographs, are printed on a long strip of paper, which folds up in the form of double leaves, each page containing a picture, with the name underneath. As a rule, photographers are opposed to them; believing that they affect the sale of good photographs, and create a lower standard in the taste for pictures. This, we believe, is a mistaken idea. Cheap pictures come within the reach of scanty purses, and they often can be sold where nothing else could. And a taste once created for pictorial embellishment, it is apt to grow more refined and cultivated, instead of retrograding. Chromos are cheap and plenty, but no one who has the means to buy fine pictures will ornament his walls with cheap chromos.

By taking the management of the sale of these souvenirs into our own hands, we hope to control the trade with photographers, and make it a matter of mutual benefit.

The house in Germany who manufacture these goods have received orders for pictures of nearly every State, all the large cities and principal watering places in America; so large is the demand for these little general favorites. And we believe a good sale could be made for them by photographers generally, and that too, without interfering with the sale-of their own views.

A full list will be found in the advertisement

of "Souvenirs;" full particulars as to wholesale prices can be obtained by referring to us.

Messrs. Bradley & Rulofson, of San Francisco, California, have sent us some very fine cabinet portraits of the Chinese Embassy. Two are of His Excellency, Chun Lan Pin, First Chinese Ambassador to the United States: Chun Shen Yen, Secretary of Legation: Lin Leang Yaun, Consul-General to Spain; Sil Ming Cook, Consul to San Francisco, and Chum Lan Pin, Consul-General to the United States. In addition to these, are portraits of the other members, about twenty-five in all, whose names we cannot give.

Messrs. B. & R. also sent a cabinet group of children; the card is marked "some of Bradley & Rulofson's babies." By actual count we find sixty to the square inch; the card is about 4x5 inches, and contains about twelve hundred faces. If these are only some of their babies, we should like to know how many these gentlemen may own between them.

A CORRESPONDENT, in remitting his subscription for the remainder of the year, writes as follows: "Of late years I have lost considerable property, and have had to deny myself many things that I ought to have had; which are my reasons for not keeping up my subscription to the Philadelphia Photographer. I used to think I could not do business without it, and I know it has been a great help to me in the past."

Why is it that as soon as a photographer feels the pressure of hard times he begins to economize by dropping his best friend and right-hand man, viz., the journal from whose familiar pages he has drawn useful knowledge, and by whose untiring vigilance he has been warned against the many frauds and catch-penny artifices so abundant in the photographic world?

We are frequently in receipt of letters like the above, and they are generally written on the renewal of subscriptions.

It is very gratifying to us to receive these testimonials from our subscribers, and to know that our magazine is so useful to them. We are always sorry when any one feels obliged to stop their subscription, for it is both their loss and ours.

MONUMENT TO M. JOSEPH NICEPHORE NIEPCE, the discoverer of photography.—An effort is being made in the city of Chalon-sur-Saone to raise a monument to the memory of the real discoverer of photography. He was a poor man, and unable to carry on his new art. M. Daguerre entered into partnership with him, and Niepce dy-

ing soon after, DAGUERRE succeeded to all his rights and discoveries, claimed them for his own, and gave his own name to the new art.

Now, after nearly fifty years, the townspeople of Niepce have determined to erect a monument to his memory; they have issued a circular to this effect, and desire contributions from photographers throughout the world.

No doubt there are many in this country who will be glad to send their share as a mark of gratitude to the memory of the man who discovered this useful and beautiful art. The Mayor of Chalon is president of a committee that has the project in charge, and persons wishing to contribute may remit to that functionary, addressing him thus: "A Monsieur le Maire, President de la Commission du Monument J. N. NIEPCE, Chalonsur-Saone, France." Some of our devotees of photography, amateur or professional, ought to raise a fund to send to M. le Maire.

A NEW JOURNAL AND PHOTOGRAPHIC MAGAZINE.—We have received all the numbers from the beginning of *The Woehenblatt*, published by Mr. E. Duby, at Berlin, Prussia.

We recognize a number of old friends among its contributors, Dr. Vogel with others. The new journal looks sprightly, and we wish it all success.

WE have received from Mr. FREDERICK E. IVES, Ithaca, N. Y., some fine specimens of photographic-block printing; samples of which will be found in our October issue. Mr. IVES seems to have succeeded most admirably in working out this difficult branch of photography.

A Suggestion.—One of our subscribers writes us as follows: "I hope that you will induce some of our skilful photographers whose full-length pictures we have admired for the past three or four years in your valuable journal, and to whom we are very much indebted, to give us some beautiful busts, or half figures, to study from."

We most heartily join our friend in this wish, and trust that some of our "picture contributors" will take the hint, and send us some of their pet negatives for the embellishment of our journal, and the pleasure and benefit of our subscribers.

• WONDERFUL DURABILITY OF THE FERROTYPE.

—This was proved lately in a most singular manner. During the encampment of the soldiers of the late war, on the field of Gettysburg this summer, a man of peculiar taste desired to obtain a skull and cross-bones; and to gratify this wish he determined to dig up the graves of some

Confederate soldiers who had fallen and been buried on that battle-field. An old farmer residing there pointed out to him two graves. One of these was opened; the skeleton of a man was found who had been shot through the head; a badge or some buttons told that he belonged to the Fourteenth Georgia Regiment. On his breast was a ferrotype, supposed to be that of his wife and two children: the case had perished, and the gilt rim around the picture was tarnished, but the gold on the pin and earrings was as bright as the day the photographer had put it there, and the whole picture was in a state of perfect preservation, though it had lain in that grave for fifteen years and fourteen days, while the mortal remains of him who once cherished it had wasted away till nothing but dust and bones remained.

We are happy to state that through the influence of this little picture the "bone-seeker" gave up his desire, and reverently closed up the grave, leaving its tenant to rest undisturbed until the Last Great Day; and he also hopes to trace out the originals of the resurrected ferrotype; and if they are in need, to assist them if possible; and in any event, to tell them where they may find the grave of the long-lost husband and father.

New Photographic Stock Depot.—We are pleased to learn that Mr. Theodore Schumann, of No. 63 Whitehall Street, Atlanta, Ga., has opened a new photographic stock depot, and is now prepared to furnish photographers with anything needful in their line; chemicals, apparatus, etc. Mr. Schumann has been known in Atlanta for many years as a manufacturing chemist, and is no doubt fully competent to carry on this new department in his business. He will act as agent for our journal, and is now prepared to receive subscriptions. We wish him all success in his new enterprise.

Head Him Off.—Mr. L. T. Sparhawk, West Randolph, Vt., writes us quite a long letter in description of a so-called travelling chemist, by name Emil von Beguelin, whose chief business seems the sale of "lightning" (?) developer, and securing little odd articles which do not belong to him. He bases his reference on rather high ground, claiming to be a nephew of Dr. Vogel, an employee in his laboratory, and now travelling in this country on a year's leave of absence, for the purpose of selling his "process."

We mention these facts, that our readers being forewarned, may be prepared to turn the cold shoulder on him. There are already too many of these pests swindling photographers out of hard-earned money, and any one once served so

should make it a matter of duty to notify his brethren in the profession.

DR. Vogel in Dublin.—Dr. Vogel has again been honored by a special invitation to attend the next meeting of the British Society for Advancement of Science. The Society will meet in Dublin some time in August. After that, the doctor will visit the great exposition in Paris, from whence we shall hear from him.

We have received the local paper from Oshkosh, Wis., in which nearly a whole column is devoted to a description of the photographic rooms of Mr. Cook Ely: He seems to have succeeded in gaining the good opinion of his townspeople, and in pleasing his customers. We congratulate him on receiving so flattering a notice.

The Total Eclipse of the Sun.—The New York Times has published a full account of the observations made from Rawlings, Wyoming Territory, by Professor Drafer, of the University of New York City; Professor Barker, of the University of Pennsylvania, and Professor Morton, of the Stevens Institute, Hoboken. We do not give the letter of Professor Drafer, as the Photographic Times will publish it in full, and our readers will there be enabled to find it.

It may be interesting to know that Professor Draper made some negatives of the corona, the exposure lasting through the whole period of eclipse, one hundred and sixty-five seconds; and the negative was a perfect success.

"LIGHTNING."—Last month we published a letter written by Mr. Allen, of Freeport, which indicated that all was not lovely with Lambert's licensees. This month we have received a set of "lightning" chemicals from a dissatisfied party (dupe, he calls himself), who for the present desires his name not to be mentioned. Elsewhere we give an analysis of the principal ingredients.

Another Streak.—This one is flashed to us from abroad, and will be found included in Prof. Stebbing's letter from Paris this month. Mr. A. L. Henderson, of London, challenged M. Boissonnas, inventor of Lambert's method, so-called, or his Paris agent, Mr. Klary, to a competitive trial with his "Lightning." The challenge was accepted, and the results by Mr. Henderson's process equalled the other. We give the latter process free.

Poor Luck.—Up to July 18th, only 142 "permits" had been given for the "Lightning" process, largely in Canada. Our journal seems to have some influence yet. Lambert flounders fearfully and evidently feels faint.

## Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

PHOTOGRAPHERS PLEASE NOTICE.—To rent, the gallery No. 1200 Chestnut Street, Philadelphia; been used as a photographic gallery for the past fifteen years; every convenience and facility for a first-class business. Rent moderate. Apply on the premises.

Wanted.—Situation as operator, or to take charge of a business, by a man who has been many years a photographer, and had good experience. First-class reference can be given.

Address B. C.,
Office Philadelphia Photographer.

#### CONDENSED LIGHTNING

Is far superior to Lambert's, or any other materials heretofore offered for QUICK WORK.

Manufactured and for sale only by LONG & SMITH, Quincy, Ill.

LIGHTNING FOR SALE.—I will sell to the first person sending me \$15.00, my seventeen-year license for working Lambert's Lightning Process, including unused balance of chemicals. Lambert will make the transfer of license. Apply at once, with cash.

S. V. ALLEN, Freeport, Ill.

Wanted to engage a lady printer who thoroughly understands printing carbon pictures (Lambertypes). One who can give good references will find steady employment at good wages. Send address and references to

C. C. SCHOONMAKER, Troy, N. Y.

FOR SALE.—The best and largest photo. gallery in Bradford, Pa., for sale; only \$300 cash needed. A decided bargain for any one. Address Photographer, P. O. Box 724,

Bradford, Pa.

Wanted to Purchase.—A photograph gallery in a city of not less than 20,000 inhabitants. Said gallery must enjoy a good reputation, and not be above the second floor.

Address Photographer, P. O. Box 68, Wappinger's Falls, N. Y.

OPERATOR WANTED.—Must also be able to retouch negatives, for one of the best galleries in Kentucky. None but those capable of making fine work need apply. Good wages and permanent situation. Address E. W.

Care Gatchel, Hyatt & Mullett,
- Louisville, Ky.

Wanted.—A strictly first-class operator who can retouch, and who is posted in carbon, and the business generally. Must come well recommended as to ability, sobriety, etc. Send photograph of self, and samples of work, with terms, to

F. W. OLIVER, OSWEGO, N. Y.

A BIG BARGAIN.—A splendid chance for a man with a small capital. A fine, cozy, little gallery, twelve miles from Boston, doing a good business. Operating and reception rooms on the same floor; rent low. Cost to fit up, \$1000; will be sold for about half that sum. Terms very easy. Reasons for selling, change of business. Apply to

GEORGE T. RAND, Weymouth, MASS.

## CHEAP! CHEAP!! A SUPERB MICROSCOPE

and Outfit For Sale!

ONE ZENTMAYER'S ELEGANT "GRAND AMERICAN BINOCULAR," fitted with objectives 1-10th to 2 inches, all of Zentmayer's accessories, case of mounting material and instruments; two cabinets of assorted foreign and American objects; Moller's Diatom Test-plate, etc., embracing a perfect outfit for a student or professional Microscopist. Cost over \$800. Address

W. J. LAND, P. O. Box 305, Atlanta, Ga.

USE HALL'S GRANITE VARNISH FOR FERROTYPES AND NEGATIVES.

#### THAYER'S RAPID PROCESS.

TESTIMONIALS.

WOODSTOCK, ILL., August 21st, 1878. N. C. THAYER & Co.:

GENTS .- I have given your "Rapid Process" a thorough trial, and consider it a complete success. I now make soft and brilliant negatives in from one to five seconds, and am so well pleased with it that I shall use no other in regular gallery work until something better is discovered.

A few days since, Mr. Hesler, of Evanston, and myself, made a comparative test of the "Rapid Process" and Lambert's "Lightning," on the same subject, giving equal time, other conditions also being the same, aside from the chemi-

The negatives made by the "Rapid Process" being fully timed, soft, and round, while those made by Lambert's were under-timed and inferior in every way. Yours, etc.,

J. S. MEDLAR.

GALESBURG, ILL., August 14th, 1878.

GENTS .- After an experience of twenty-five years in the picture business, during which time I have expended hundreds of dollars in the purchase of different processes and improvements, allow me say, your "Rapid Negative Process' to me has proved the most valuable; as with it I have been enabled to "capture several little cherubs," to the astonishment and delight of fastidious and anxious mothers, which, with the ordinary formulæ, I could not have succeeded in

As evidence of my appreciation of your valuable Rapid Materials, please send me another outfit for my other gallery, as my operator (Mr. Harrison) thinks it invaluable "in baby work."

Send at once, and oblige.

Fraternally yours,

Z. P. McMillen.

P. S .- Send the following: Collodion, one pound; Developer, one gallon; Continuator, one pint; Silver Bath, one quart.

Z. P. McMillen.

PERU, ILL., August 20th, 1878. GENTS .- There was a reign of darkness and

disappointment during the time I worked (or tried to work) the so-called "Lightning" process, following strictly its directions.

Not wishing to lose any more valuable time, I sent for your "Rapid Process," and at once darkness and disappointment disappeared. In other words, the "Lightning" proved a failure in my hands, and the "Rapid" a complete suc-Respectfully,

JOSEPH EVEN.

#### THAYER'S Unrivalled Retouching Points.

PRICE JUST REDUCED TO 35 CENTS EACH, OR THE THREE DIFFERENT GRADES FOR \$1.00.

They give universal satisfaction.

Address N. C. THAYER & Co., Chicago, Ill.

Some photographers have written us that they like our Rapid Chemicals very much, but would rather buy on the terms offered by Lambert for his process.

To accommodate all, we now offer to sell (to such as prefer to buy in this way) permits unlimited as to time, for \$20.00, without any royalty, and furnish our Quick-working materials at same prices as advertised by E. & H. T. Anthony for the so-called "Lightning" chemicals, although we claim that ours are far superior, both as to rapidity of working and quality of results; the bath alone costing us nearly one half more than the ordinary silver-bath.

We will furnish the usual forty-grain silverbath at \$3.00 per quart, instead of our Rapid Bath at \$4.00, when desired; or we will sell our Rapid Developer and Collodion without the bath.

Sample photographs, made in less than onehalf second, sent when applied for.

> N. C. THAYER & Co., No. 250 & 252 Wabash Av., Chicago, Ill.

#### RICHARDSON'S SENSITIZED PAPER

is economical, because it saves time, trouble, and money, and its printing qualities are unsurpassed. See advertisement in Photographer for July and August, 1876, Mosaics for 1878, or send for cir-C. F. RICHARDSON, Wakefield, Mass. cular to

A. LAMOR,

EDW. LAMOR, ARTISTS.

Photographs finished in Water Colors, Crayon, or India Ink, in the highest style of the art.

PORTRAITS IN OIL A SPECIALTY. Negatives finely retouched.

738 SANSOM STREET, PHILADELPHIA, PA.

#### NO MORE FAILURES

On Babies, if you use "CON-DENSED LIGHTNING" materials. For prices, address

LONG & SMITH, Quincy, Ill.

ZENTMAYER STEREOSCOPIC LENSES FOR SALE. -A pair of 21 inch focus, good as new, will be sold for \$25. Address

> Z 2½, care Philadelphia Photographer, 116 N. Seventh St., Philadelphia.

\$900, part cash, will buy one of the best located galleries in Chicago. Several residence rooms, rent \$25. Cash receipts never below \$200 to over \$400 per month.

Denslow,

184 East Madison St., Chicago, Ill.

#### **EMULSION PHOTOGRAPHIQUE FRANCAISE**

ALBERT LEVY, 77 University Place,

Sole Proprietor.

New York, June 14th, 1878.

Having been trying for the past two or three years to find Dry Plates which were sensitive and reliable, I am well pleased to be able at the present time to get any of my amateur photographic friends out of the fog, and show them the means of obtaining Dry Plates which work well and reliable in all places and weather, and require no art or cleverness to produce good, clear negatives, vigorous and brilliant prints.

I purchased of Mr. Albert Levy one dozen of his Dry Plates on trial, and the result so far exceeded my expectations that I really began to think that I was a photographer, forgetting it was the plates and not the man. I have long ago discontinued using bath plates, and all other plates or emulsion except his, and have invariably found them to work the same.

Yours, etc., H. W. WICKHAM, 384 and 386 Broadway, N. Y.

#### THE BEST RESULTS

With SHORTEST EXPOSURES, by the use of "CONDENSED LIGHTNING." For particulars, address LONG & SMITH,

Quincy, Ill.

GREAT chance to make money. If you can't get gold you can get DI greenbacks. We need a person in every town to take subscriptions for the largest, cheapest and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address "The People's Journal," Portland, Maine. A FIRST-CLASS GALLERY in good order, and best reputation, is for sale on easy terms; or would exchange for one in a larger place.

Address

"ARTIST," Box 120, Hopkinsville, Ky.

#### THE WONDERFUL EURYSCOPE.

CLEVELAND, OHIO, March 13th, 1878.

BENJ. FRENCH & Co.:

DEAR SIRS.—Pardon me for saying I spleened against the term "wonderful" in connection with the Euryscope, as a sensational description. After having used this instrument for various purposes, both indoor and out, I am bound to admit that wonderful is the right word.

Intelligent photographers will not be without so powerful an instrument, particularly when sold at such low prices.

Yours truly, J. F. RYDER.

Boston, May 7th, 1878.

BENJ. FRENCH & Co.:

DEAR SIRS.—After a thorough and every way satisfactory test of No. 3 Euryscope purchased of you a few weeks since, it is with pleasure that we accord it our hearty commendation; its remarkable light and great breadth of field, renders it especially desirable for groups, etc. We therefore beg to congratulate you on the entire success accompanying the introduction of this valuable adjunct to photography.

Yours truly, NOTMAN & CAMPBELL.

#### Gihon's

Photographic Colorists' Guide. Now ready. By mail, \$1.50.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

By a man of more than twenty years' experience, a position as operator, or to take charge of a business; would be willing to take charge of printing and toning; thoroughly acquainted with every department: First-class references given. Address H. C. Bridle, office Photographer.

As printer or retoucher, in a first-class gallery, with ten years' experience. Address Charles E. Van, Auburn, N. Y.

In a gallery by a No. 1 operator of long experience and steady habits; also desires to buy a second-hand 4-4 lens, 5 x 8 camera hox, and other apparatus. Address H. Florance, Montgomery, Ala.

A young man of good habits, and who is a first-class printer and toner, would like a situation in a first-class gallery. Has had three years' experience. Address, with particulars, William H. Shaw, Boston Herald office, Boston, Mass.

USE HALL'S GRANITE VARNISH FOR FERROTYPES AND NEGATIVES.

By a first-class crayonist. Address Miss Anna Gable, Stewartstown, York County, Pa.

By lady artist, in a New York gallery. Address Nellie Ristiark, No. 25 North Juniper St., Philadelphia.

As printer in a first-class gallery, or will assist in the dark-room. Have had eight years' experience. Address Charles Ford, care Box 164, New York City.

As operator in first-class gallery; steady habits, and willing to work first-class work only; also printing and toning a specialty. Address C. L. Moelk, Photographer, Cleveland, Ohio.

As operator: have had several years' experience. Salary not so much an object as a good situation. Address Box 371, Middleboro, Mass.

About the first of September, by a young man thoroughly competent in all branches; ten years' experience. Address E. S. Matthews, Fort Edward, New York.

By a young man of studious and industrious habits, having some knowledge of the business, and wishing to complete his instruction, is willing to work for his board. Best of references Address G. W. Newport, Barry, Pike Co., III.

With a first-class photographer as artist in water-colors and ink, and negative retoucher; several years' experience in leading New York galleries (Kurtz's, Fredericks's, Bogardus's, etc.). Salary \$25, payable weekly. Address W. T. VanLoan, 363 Broadway, N. Y.

By October 1st, as crayon and water-color artist; can work without paint; can pose, or assist in printing and toning. Address E., P. O. Box 51, Skaneateles, N. Y.

By a first-class operator and retoucher, posted in all branches of the business; would go South. Address W. H. C., P. O. Box 139, Owego, N. Y.

In some first-class gallery, as operator; having had fourteen years' experience in none but first-class Philadelphia galleries; fancy printing and retouching, or would take charge of a gallery where there are facilities for making first-class work. Address George W. Schell, care Philadelphia Photographer.

In a good gallery, by a young man of eight years' experience. Willing to work at any part of the business. Would work on shares, or would buy a half-interest of the right man. Address A. W. Story, Cambridge, Mass.

By a young lady, as retoucher; can assist with printing, or in reception-room. Address A. L., care of G. Cunningham, Mansville, N. Y.

As retoucher and assistant printer. Address Adam C. Gicker, 1446 Franklin Street, Philadelphia, Pa.

By a first-class retoucher, printer, and toner. Has had four years' experience with the best artists in Canada. Unexceptionable references. Would like a place with prospect of lease or purchase. Address R. M. W., Box 208, Brockville, Ontario.

## Charles Cooper & Co.

## 191 WORTH ST., NEW YORK,

OFFER AT WHOLESALE

PHOTOGRAPHIC CHEMICALS, strictly pure and of full weight.

CROSS-SWORD DRESDEN ALBUMEN PAPER, Single and Extra Brilliant.

EVAPORATING DISHES.

GERMAN SOLID GLASS BATHS.

PORTRAIT LENSES-C. F. Usener's Celebrated

The largest and most reliable house for Refining Waste and Residues.

## THE SECOND EDITION OF

# HEARN'S PRACTICAL PRINTER

## WILL BE READY OCTOBER 1st.

It is a Complete Manual of Photographic Printing on Plain and Albumen Paper, and on Porcelain.

At one time too little attention was given to Photographic Printing, although it is indeed quite as important a branch of the art as negative making.

The author and publisher feel that they have created a REFORM in this matter, by the issue of this work, and thus put money in the pockets of all who read it. There are some who still want it and we shall meet the demand.

#### CONTENTS IN OUR NEXT NUMBER.

The whole work has been largely REVISED and IMPROVED and brought up to the requirements of the day.

#### TESTIMONIALS.

"I consider it the best work on printing and toning that has been published, or at least that has come into my hands, and until I see a better one I shall give it the first place. If any one wishes to be helped out of the mud let him read it; but if he wants to stick there let him keep his money in his pooket, and stick till doomsday if he likes."—

JOHN R. ČLEMONS, Philadelphia.

The Photographic News says: "In the work before us, however, silver printing and everything connected therewith is treated most exhaustively, and the work is evidently that of a practical man who speaks out of the fulness of his own experience in every branch of regular work, as well as with familiarity of the various forms of fancy printing, which have prevailed more in America than in this

country. Mr. Hearn manifestly thoroughly understands his work, and is, moreover, a clear and vigorous writer."

The British Journal of Photography, says: "It is a considerable period since we rose from the perusal of a new book on photography with feelings of greater satisfaction than in the present instance; and we appreciate the author as a writer, not only thoroughly conversant with the subject, but as very willing to impart to those less skilled the knowledge he possesses, and who, happily, has also the ability to do this in a singularly lucid and attractive manner. 'The Practical Printer' is well 'got up,' and the work cannot fail of being acceptable and useful to all classes of photographers, the veteran as well as the tyro in our art-science."

Over 50 Wood Cuts and an elegant Cabinet Portrait will embellish it.

A THOUSAND COPIES ALREADY GONE.

Mailed, post-paid, on receipt of \$2.50, by any dealer, or

EDWARD L. WILSON, Photo. Publisher, 116 North Seventh Street, Philadelphia.

## APPARATUS AND LENSES FOR SALE!

## THE CENTENNIAL PHOTOGRAPHIC COMPANY

OFFER THE FOLLOWING

### ARTICLES FOR SALE AT LOW FIGURES.

They have been used, but are mainly as good as new. Two holders accompany the camera boxes generally.

As to the lenses, they are the very finest quality, as the excellent work made with them will testify. They were carefully selected and are prizes to any one who may secure them.

Prices will be given on application, and buyers who have opportunity may inspect before purchasing. Those at a distance are guaranteed that the goods will be entirely as represented.

## LIST.

One 20 x 24 American Optical Co.'s Cone One 11 x 14 American Optical Co.'s Stereo. Bellows, D. S. B. View Box.

One 14x17 American Optical Co.'s Cone Bellows, D. S. B. View Box.

One 10 x 12 American Optical Co.'s Cone Bellows, D. S. B. View Box.

One 5 x 8 American Optical Co.'s Stereo. View Box.

Portrait Box.

One 8 x 10 American Optical Co.'s Stereo. Portrait Box.

One 20 x 24 American Optical Co.'s Negative

One lot 5 x 8 and 8 x 10 Printing Frames.

## LENSES.

One Hermagis' Cabinet Lens. » View-Copying Lens, 20 x 24. One One 8 x 10. 5 x 8. One pair Zentmayer's Stereo. Lenses. One Ross' Symmetrical Lens, No. 3. » No. 5, 5 x 7.

One Ross' Ordinary Angle Doublet, 10 x 12. Two pairs Ross' Stereo. Lenses.

One pair Ross' Stereo. 5 x 4 Lens, S. A. Doublet.

One pair Ross' Carte-de-Visite Lenses, No. 2. One Darlot Lens, 1-4 size.

Two Focusing Glasses, Amer. Optical Co.'s.

These are positively the last used goods we will have for sale, all the rest being Address ' retained for our own use.

## CENTENNIAL PHOTO. CO.,

116 North Seventh St., Philada.

## CLOUD NEGATIVES FOR SALE.

## Preface to Catalogue of Magic Lantern Slides.

WE have endeavored to make the Catalogue which follows secure to its reader not only a list of Slides and Apparatus, but, avoiding confusion and cumbersomeness, a satisfactory list of the best things to be had of their kind.

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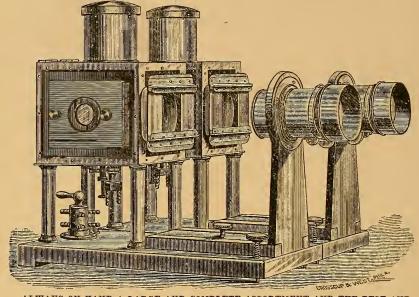
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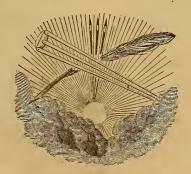
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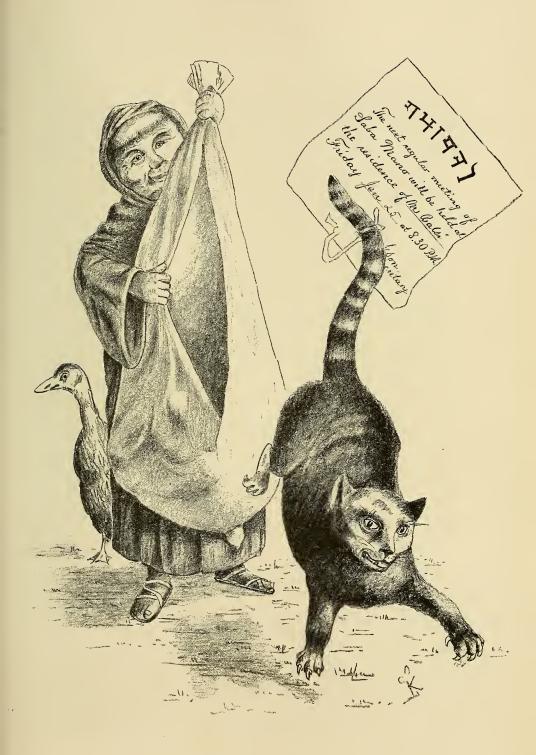


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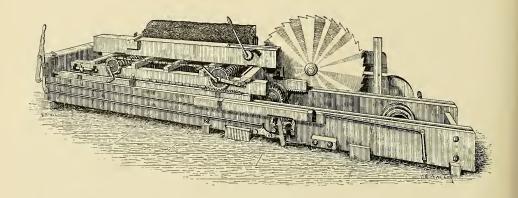
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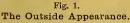
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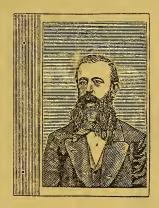


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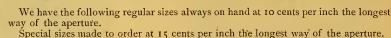
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$2\frac{1}{8} \times 3\frac{1}{8}$	$3\frac{5}{8} \times 5\frac{1}{8}$	6 x 8	$2\frac{1}{8} \times 3\frac{3}{4}$	$2\frac{3}{4} \times 4\frac{1}{4}$	$4 \times 5\frac{5}{8}$
$2\frac{1}{8} \times 3\frac{1}{4}$	4 x 5\frac{3}{8}	$6\frac{1}{4} \times 8\frac{1}{4}$	$2\frac{1}{8} \times 3\frac{1}{8}$	$2\frac{3}{4} \times 4\frac{1}{2}$	$4\frac{1}{8} \times 5\frac{7}{8}$
$2\frac{3}{8} \times 3\frac{3}{8}$	$4\frac{3}{8} \times 6\frac{3}{8}$	$6\frac{1}{2} \times 8\frac{1}{2}$	$2\frac{5}{16} \times 3\frac{15}{16}$	$2\frac{7}{8} \times 4\frac{5}{8}$	$3\frac{7}{8} \times 6$
$\frac{25}{8} \times 3\frac{5}{8}$	5 x 7	$7 \times 9$	$2\frac{5}{16} \times 3\frac{3}{4}$		$4 \times 6\frac{1}{8}$
0 0			FOR	STEREOGRAPI	HS.
$2\frac{7}{8} \times 4\frac{1}{4}$	$5\frac{1}{4} \times 7\frac{1}{4}$	$7\frac{1}{4} \times 9\frac{1}{4}$	Arch Tops.	Round Cornered.	Round.
$3\frac{3}{8} \times 4\frac{3}{8}$	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3\frac{1}{16} \times 3\frac{3}{4}$	$3\frac{1}{16} \times 3\frac{3}{4}$	3 x 3
33 x 45	55 x 75	$7\frac{3}{4} \times 9\frac{3}{4}$	3 x 3	3 x 3	

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-A. K. P. Trask, Philadelphia.

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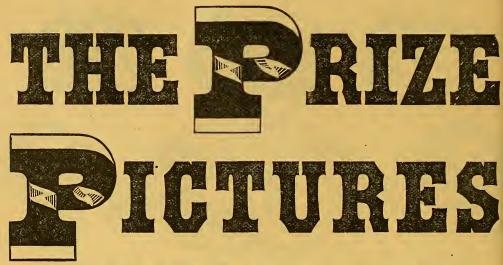
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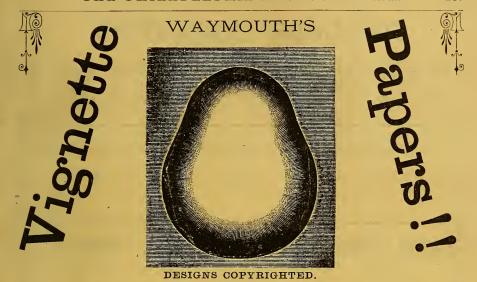
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"AN EVENING AT HOME."

LEON VAN LOO,

# Philadelphia Photographer.

Vol. XV.

#### OCTOBER, 1878.

No. 178.

Entered according to Act of Congress, in the year 1878,

BY EDWARD L. WILSON,

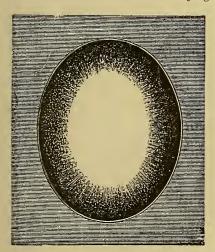
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## WAYMOUTH'S VIGNETTE PAPERS.

BY CHARLES W. HEARN.

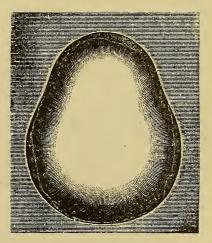
[In the Second Edition of The Practical Printer.]

THESE papers, although they are a great deal in use, are by no means as extensively used as they would be if their value were better known, and, consequently, more fully appreciated by the printer. Some have purchased, used, and condemned them without the least sense of fairness in their judg-



ment, as they had used them incorrectly; whereas there are many others, who, having

used them once, would not be without them. The writer, knowing full well the diffi-



culties that printers, as a class, are obliged to contend with in vignette printing, to say nothing of the time it takes to make the vignette forms from cardboard, etc., would here briefly call the attention of those who are not already aware of it, to the advantages to be derived by the use of the Waymouth Vignette Papers.

The impression gained ground among the photographic fraternity a few years ago, that all that was necessary in using these vignette papers, was to paste the corners of the paper (after having matched the vign-

ette opening to the figure) on to the back part or glass side of the negative, and then place the frame out to print in the sunlight, thinking possibly that the blending of the vignette paper would indicate its exact counterpart in softness in the picture; and because it did not, they were disappointed, and the "Waymouths" were rejected. If they are to be judiciously used, it is necessary that the paper vignette should be removed from the negative all of the way from onehalf to one and a half inches, depending somewhat upon the negative, and the degree of softness desired to be obtained. frame is built up with strips of backboard, and the vignette paper fitted to the negative through transmitted light, and then it is tacked in its proper place. They are easily adjusted, and have the advantage of being already made, thus saving the time of the printer in cutting this and that size form out of cardboard, which, when done, is not only a waste of time, but is also, except, perhaps, in very rare cases, not nearly as good.

The sizes are very well arranged from No. 1, which is intended for vignetting large locket pictures, up to the largest size, for vignetting four-fourth heads, together with the intermediate numbers, which answer well for various sizes of card and cabinet negatives, either for bust, three-quarter length, or full figure. The use of the various sizes may be classified as follows:

No. 1. Large locket bust vignette; oval. Nos. 2 & 3. Very small size bust card vignette; oval.

Nos. 4 & 5. Small size bust card vignette; oval. Nos. 6 & 7. Regular size bust card vignette; oval.

Nos. 8, 9 & 10. Card vignette; various sizes; oval.

Nos. 11, 12 & 13. Card vignette; especially good when good support of shoulders is desired; pear shape.

Nos. 14 & 15. Cabinet bust; two excellent sizes: pear shape.

No. 16. Cabinet; splendid size for vignetting; three-quarter figure; pear shape.

No. 17. Cabinet; very fine size for vignetting full figure poses; oval.

No. 18, etc. Good for vignetting eight-ten heads, etc.

There is another advantage gained by

using these papers, when "flashed" or "grayed" prints are to be desired (the pose being such as to admit of it), and it is the facility with which the graying is done, simply by removing the tacks from one end of the vignette paper, bending the paper back out of the way, and then printing the negative as though it was a plain print, for a minute or so. This has the result of softening still more the edges of the vignette on the picture, besides also printing the rest of the negative very slightly, thus giving to the whole print a very delicate effect of a vignette which had blended very softly and gradually even to the very edges of the print. When through flashing, the vignette can be turned back again to its place and retacked, without the extra trouble of readjustment.

If the figure is a three-quarter or a full length of a lady, "in exterior," with the proper arrangement of accessories and background, the result, when nicely done, is indeed very beautiful, as it softens down those parts of the background which are so necessary to give an artistic effect to the figure in relief, besides obviating the bad effect of the white edges of the vignette print, as it would be if not grayed; or if grayed in the regular way under a plain glass with tuft of cotton, etc., it then overcomes the objection of seeing the trees, rocks, etc., which start out boldly near the figure, end in a dead gray hue, without the least indication of detail towards the edges of the print.

If the print is a plain bust, then "graying" under a plain glass is what is desired, and is best, because the negative cannot be exposed as a plain print after the vignette is nearly done; as the figure must not show down, but for a three-quarter or full length pose, with a suitable ground, it is excellent. It is a very pretty effect if the majority of the portrait cabinet negatives of the class just described are printed in the vignette style, and then \*flashed\* just enough to be of a light, delicate tinge after finishing. It gives an elegance to the prints that the customers cannot fail to admire.

In adjusting these vignette papers on to the built-up portion of the frame, for vignette purposes, care should be taken that the top of the vignette paper is not placed too high upon the negative, but placed exactly opposite the top of the head of the portrait. If this is not looked to, the printer is likely to print a dark spot right over the head, and all subsequent flashing will not remove its hideous appearance.

If this flashing is done only slightly, then very great care should be taken to have the vignetting especially soft, by building the frame fully an inch or more, as this delicate second printing does not suffice to soften the edges but very slightly, and although if flashed darker, the outlines of a harsh vignette picture could be softened considerably; in the case of a lightly flashed picture, it would, by no means, answer.

In using these vignette papers after a while, the tissue-paper is likely to have little breaks and tears occur, which necessitate patching up in order that these places will not print in the picture. In commenting with me one day in regard to these little annoyances, a friend of mine, Mr. W. F. Kidney, of Chicago, a most excellent operator and poser, suggested to me the simple plan of waxing a suitable piece of white tissue-paper, and, by means of gum-paper, to attach it to the exterior side of the vignette paper, so that in case of any accident the waxed paper would receive it, thus saving the "Waymouth." When tried, it proved most effectual, the difference in time of printing being hardly perceptible.

One more suggestion in regard to flashing. Do not attempt to flash very lightly if the figure and surroundings are quite dark in drapery. In such cases it would be better if the flashing is carried a trifle further; but if the drapery and neighboring surroundings are light, then a very soft vignette, very slightly flashed, makes the most beautiful, delicate picture imaginable.

[Just as we were about to "make up" our magazine, we received some admirable vignettes from Mr. Hearn, printed, as he says, with Waymouth's Vignette Papers. They are most delicately done, soft and beautiful, and confirm not only what he has said above, but establish his reputation as an artistic printer, fully able to cope with all the difficulties of his department.—Ed. P. P.]

Buy Hearn's *Practical Printer*, second edition, \$2.50.

#### HITHERTO UNSUSPECTED CAUSE OF FADING IN CARBON PRINTS.

BY JOHN NICOL, PH.D.

LTHOUGH carbon printing has not yet become so popular in America as it is in some parts of Europe, I saw enough of it, during my recent tour through the States, to warrant my supposing that any hitherto unsuspected cause of fading will be of considerable interest to American photographers, and readers of American photographic literature generally. The word fading, however, hardly conveys the proper idea in the case in question, as it is to no change in the pigments of which the picture is composed, but to a general discoloration of the paper to which the print is transferred, that I allude. Carbon printers, generally, are no doubt aware that from time to time, during the past few years, complaints have been made of the fading, or degradation of tone suffered by pigment prints that had been exposed to bright sunlight, and as there could be no question as to the stability of carbon itself, the fault was attributed to such coloring matter as had been employed to give warm, or purple-brown tints, in imitation of silver prints. For this purpose anilin reds were first tried, then lakes from cochineal, but a brief exposure to sunlight, in either case, showed their utter worthlessness, and led the experimentalist to seek for something more endurable. This was at last, and within the present year, supposed to have been found in certain preparations of alizarin, and all interested in the subject were congratulating themselves on the solution of the problem, and working in perfect confidence that the "things of beauty" they were supplying to their customers would be "joys forever," when the publication of a discovery made by Mr. Tunny, of Edinburgh, burst like a shell amongst them, and scattered consternation all around. Tunny had for some time noticed a peculiar and disagreeable degradation in the whites of his carbon prints, and as they were generally of large size, and somewhat expensively finished, his conscience was sorely troubled at the idea of sending out "permanent prints" that were not permanent, and therefore he resolved to run the cause to earth, if possible. With this object in view, he commenced a series of experiments which led him on, step by step, to the discovery that the fault lay not in the material or method of printing, but in the transfer-paper, both single and double transfer, which became the final support of the print. Of course, his first idea was that he had been unfortunate enough to get possession of a faulty sample of transfer-paper, but this was dissipated on subjecting to the action of sunlight portions of the commercial article that had been supplied to him in the ordinary course of business, periodically, during the previous two years.

Such a discovery was not likely to be neglected by the Autotype Company, with its large commercial interests at stake, and they at once took the matter up, and prosecuted it with their usual energy, arriving at the conclusion that the discoloration arose not from anything used in the manufacture of transfer-paper, but from some cause inherent in certain samples of paper itself. How far this conclusion is correct, I am not yet in a position to say; as, although I have for some time been making a series of experiments that should finally settle the question, the various samples have not been exposed for a length of time sufficient to warrant an expression of opinion. On the supposition, however, that it may be correct, the subject is of such vital interest to all connected with permanent photographs, as to deserve most careful investigation by as many as may have leisure and convenience to carry it out.

The demand by silver printers for an evenly made paper, perfectly free from metallic specks, or anything that will combine with the salts of silver, etc., employed by them, has for years been satisfactorily met, but the care necessary in its manufacture so enhances its price as to make it desirable to have recourse to ordinary commercial, and consequently cheaper samples, in the production of transfer-paper. It has hitherto been supposed that any well-made tough paper of a good color, would, by a coating of gelatin and chrome alum, be suitable for the transfer of carbon prints, but if the experiments of the Autotype Company may be trusted, this is not the ease; as, while certain samples retain their original whiteness after any reasonable exposure to sunlight, others become discolored, assuming a dirty-brown shade after a few days.

I do not know how papers are made in the States, but from a general acquaintance with the manufacture in this country, and from recent investigation at some of our largest mills, it would appear that there should be no difficulty in ascertaining where the evil lies, and guarding against it. Ordinary commercial white paper may be made from pure rags, pure esparto, or a mixture of both. The raw material is, in all cases, bleached by chiorine, and subsequently subjected to the action of an "antichlor," in the shape of hyposulphite of soda, to remove every trace of the bleaching agent, and this in its turn is effectually removed by subsequent washings. In some cases the white produced by the action of chlorine is not so brilliant as the fastidiousness of the "trade" requires, and to meet that, recourse is had to a trace of ultramarine, or cochineal, either of which neutralizes the almost imperceptible shade of yellow, in the same way that the "blue-cloth" of the washerwoman gives an apparent whiteness to the For transfer-paper, however, such apparent brilliant whiteness is neither necessary nor desirable; as the slightly yellowish tone of what is technically called "naturalcolor" paper, is decidedly more suitable for the whites, or high-lights, of a carbon print. In addition to rags or esparto, or both, ordinary paper contains "size," either on the surface or in its substance. The former is called "tub sizing," the material being gelatin and alum, the latter "engine sizing," and the material is an alkaline solution of resin.

It will thus be evident that in this country at least, the kind of paper available for transfer purposes may be found in one or more of the four varieties indicated, and on the presumption that the manufacture in the States is similar to that here, the experimentalist might do well to confine himself to those in the meantime. First, natural-color paper from pure rags, sized with gelatin; second, the same, but with resin size; third, natural-color paper from esparto, with gelatin; and fourth, the same, with resin. Pieces of such papers that retain their purity

after an exposure of ten days to American sunshine, may be used for transferring with perfect confidence, always supposing that the paper, and not the material used in converting it into transfer-paper, has been at fault; but as that is not yet quite a settled question, it may be well also, at the same time, to coat a set of specimens with the chrome-alumed gelatin, so that its effect may also be noted.

With the editor's leave, I shall return to the subject again when my experiments have been completed, but hope, in the meantime, that some of the readers of the *Philadelphia Photographer* will ascertain the composition of American papers, and subject them to similar tests.

EDINBURGH.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 271.)

LUMINIUM, or aluminum (atomie weight, 27.4; symbol, Al). metal, combined with oxygen, occurs quite frequently in nature. It was first separated by Wöhler, who obtained it as a gray powder. When in a metallic state, it is a white, malleable metal, resembling zines to a great extent in color and hardness. On account of its extreme lightness (its specific gravity being 2.6), its bright lustre, and power of withstanding atmospheric influences, it is used quite frequently in the arts; in this direction its sphere of usefulness is spreading every day. It forms alloys with many of the other metals, some of which are quite useful. Those with copper might be given as an example. They are very hard and may be highly polished; their color varies from silver white to gold yellow, the gold yellow being widely known under the name of aluminum bronze. It is the lightest metal that can be utilized in the arts in its metallie state, and the extent to which it will be used only depends on the ease with which it can be extracted from its ores. The only oxide of aluminium known is

Alumina (Al<sub>2</sub>O<sub>3</sub>). It occurs quite widely distributed in nature united with silica; it is found in clay in a greater or lesser state of purity, according to the quality of the clay, of course. It is also found nearly pure

in the ruby, sapphire, and emery. It has a peculiar property of forming insoluble compounds with vegetable coloring matter; these compounds are called lakes. On account of this property it is much employed as a mordant in dyeing and calico printing, to render the colors fast.

Aluminium sulphate,  $Al_2$  ( $SO_4$ )<sub>3</sub>, is a quite useful salt, especially to the dyer. It is frequently called "patent alum." The alums are, however, of more general importance. An alum is a double sulphate of aluminium and some other metal; for instance, potash alum is aluminium potassium sulphate,  $Al_2$ ,  $K_2(SO_4)_4+24H_2O$ . [ $Al_2(SO_4)_3+K_2SO_4=Al_2$ ]  $K_2(SO_4)_4$ .] There can be as many alums as there can be produced regular salts made up in the plan given above. There are ammonia, ehrom (with chromium), manganese alums, and others.

Porcelain or earthenware vessels consist of a body of baked silicate of alumina clay, the purity of which varies with the fineness of the vessel to be manufactured, covered with a coating of an insoluble silicate glaze, that conteracts the porosity of the clay, and renders the vessel capable of holding liquids and withstanding their action.

As has been mentioned before, the silicates of the alkalies are soluble in water; the silicates of the alkaline earths are soluble in acids; but, and this is the remarkable part of it, the silicates of the alkalies and alkaline earths are soluble in neither water nor acid. Such a silicate, when fused, is called glass, of which there are four kinds: First. Silicates of sodium and ealeium, forming plate, crown, or window glass. Second. Silicates of potassium and ealcium, called Bohemian glass. Third. Silicates of potassium and lead, called flint glass, or erystal; and Fourth. Silicates of sodium, calcium, iron, and aluminium, called "common green bottle glass."

GLUCINUM (atomic weight, 9.5; symbol, G). A rare metal, so called from a Greek word, meaning sweet, because its salts have a sweet taste. It is also called beryllium (because it is found in the beryl), with the symbol Be.

ZIRCONIUM (atomic weight, 89.6; symbol, Zr) is a quite rare metal, so called because it is found in Zircon.

THORNIUM (atomic weight, 119; symbol, Th). A rare metal, discovered by Berzelius in 1829; so called because it is found in thorite.

YTTRIUM (atomic weight, 61.7; symbol, Y). A rare metal, named after the mineral ytterbite.

CERIUM (atomic weight, 92; symbol, Ce). Discovered in 1803 by Klaproth; so called from the mineral cerete, in which it was found.

Lanthanum (atomic weight, 92.8; symbol, La) was discovered in 1841 by Mosander, and so called from a Greek word meaning "to lie hid."

DIDYMIUM (atomic weight, .96; symbol, Di). A rare metal, so named from a Greek word meaning "twin," on account of its close association with lanthanum.

We come next to the magnesian metals.

MAGNESIUM (atomic weight, 24; symbol, Mg). Magnesium is a very light, malleable metal. It occurs in the mineral kingdom quite widely distributed, notably as carbonate in magnesian limestone. It takes a high polish, and is not tarnished in dry air; if the air be moist, it becomes slowly oxidized. It melts at a red heat, and fuses at nearly the same temperature as zinc; indeed, it resembles zinc in more characteristies than one. It is not effected to any great extent by cold water, more rapidly by hot water, and with great readiness by acids. When warm, it may be drawn into wire or ribbon; it may even, with great care, be cast like brass. Magnesium, when heated, burns with a brilliant white light, which, as is well known, on account of its richness in chemical rays, makes a useful substitute for the sun's rays for the taking of photographs. In burning, it forms its only oxide:

Magnesium oxide, or magnesia (MgO). A white, amorphous powder. It unites with acids to form the magnesium salts. Of these salts, the sulphate (MgSO<sub>4</sub>+7H<sub>2</sub>O) is known as Epsom salts, so called from being found in Epsom spring in England; and the magnesia alba of the shops is a mixture of the carbonate and hydrate.

Zinc (atomic weight, 65.2; symbol, Zn). Zinc is a quite abundant and useful metal. It has been known in its metallic state since the time of Paracelsus. It resembles mag-

nesium in many chemical ways, but is by no means as hard "to win" from its ores as the latter metal. It is a hard metal of a bluish-white color. When a mass of it is broken it exhibits a beautiful lamellar crystalline structure. At ordinary temperatures it is brittle; at a temperature, however, of from two hundred and forty-eight degrees to three hundred degrees it is malleable, and may be, in fact is, hammered and rolled into sheets, which, it is worthy of notice, as being out of the usual order of things, retain their malleability when cold. It is thus that sheet zinc is made. But if the heat be increased to four hundred and ten degrees, it becomes so brittle that it may be pulverized. seven hundred and seventy-three degrees it melts, and at a bright red heat, volatilizes, and if air be present, burns with a beautiful and delicate light of a greenish tinge, forming the oxide. Zinc is not changed in dry air; but if the air be moist the metal is soon covered with a coating of the oxide, very thin, yet adhering very closely to the surface of the metal and protecting it from further change. This property is made use of by covering sheet-iron with a slight coating of zine, which protects the iron from the action of the atmosphere; such iron is said to be galvanized. Zinc is used in several important alloys; brass, of copper and zine, or German silver, of copper, zine, and nickel, for instance. It is dissolved by acids, disengaging hydrogen in the action; hence it is frequently employed for making hydrogen. It is one of the metals used in the galvanic battery; indeed, it would be quite a task to mention all the ways in which it has been found to be useful.

Zinc oxide (ZnO) is the only oxide. It is formed by the burning of the metal in air. It is used quite extensively as a pigment, under the name of zinc white. The sulphate is the substance known commonly by the name of white vitriol.

Cadmium (atomic weight, 112; symbol, Cd). Cadmium was discovered in 1818 by Stroymeyer. It occurs closely associated with zine; it is, however, rarer and more volatile than that metal. This last characteristic is made use of for the separating of the two. It is a white, ductile metal, much resembles tin in its appearance, but is harder.

It is very volatile, and has a tendency, when used in an alloy, to produce a low melting-point. One composed of fifteen parts of bismuth, eight of lead, four of tin, and three of cadmium, for example, is silver-white, and will melt if put into boiling water, or water near the boiling-point. When heated in the air, the metal burns, forming the only oxide (CdO). Of the salts of cadmium, the sulphide is sometimes used as a pigment, and the bromide and iodide are quite useful in photography; the remainder are of minor importance.

We come next to the class of metals more or less allied to iron, of which the first is

COBALT (atomic weight, 59; symbol, Co); was discovered as a distinct metal in 1733, by Brandt. It is never found in the metallic state in nature, except in very small quantities in meteoric iron. It is about as infusible as iron, and is very tenacious. It is of a reddish-white color. When exposed to the action of the atmosphere, it is slowly changed to oxide. Cobalt is not used in the arts in a metallic state, but as its salts are chiefly remarkable for the brilliancy of their colors, they are frequently used as pigments.

There are two oxides of cobalt: the monoxide (CoO) and the sesquioxide (Co<sub>2</sub>O<sub>3</sub>), besides which there can be intermediate oxides formed by the combination of these two.

Cobalt monoxide, or cobaltous oxide (CoO). A substance of a greenish-gray color when cold, and of a brown color when hot. It dissolves in acids, forming the cobaltous salts, which are of a beautiful blue color when in concentrated solutions, and of a pink color when diluted. This oxide is remarkable for the beautiful blue color which it imparts to glass, which a very small portion of it has the power of doing to such an extent that it makes one of the most delicate tests known. A glass is also made colored by means of this oxide, and then ground very fine and elutreated; that is, placed in water, and stirred, after which it is allowed to stand some time, and the water poured off; by which means, as all the glass, except the smallest particles, has settled to the bottom, these smallest particles are separated from the rest; the water which was run off, and which holds them in suspension, is allowed to stand, so that the glass settles to

the bottom, and is thus obtained in a very fine powder. This is called *smalt*. This oxide is also used in the preparation of the cobalt ultramarine, or Thénard's blue, and Rinman's green. The zaffer of commerce is the impure oxide mixed with sand.

Cobalt sesquioxide, or cobaltic oxide  $(Ce_2O_3)$  forms with acids cobaltic salts, which are not stable, and of but little importance. There are quite a number of salts of cobalt, of various uses.

NICKEL (atomic weight, 58.7; symbol, Nickel was discovered in 1751 by Cronstedt. It occurs with cobalt in ores; indeed, these two seem to have the greatest affection for each other, being generally found together, and separate from each other only with the greatest reluctance. It is, when pure, a silver-white, brilliant metal. It is quite malleable, although quite hard; it has a high melting-point, but lower than that of iron. It is not attacked by the air, except when heated to a high temperature; hence it has been made use of in the arts, very much of late for the purpose of nickel° plating. Like cobalt, it does not occur in nature in a metallic state, except in meteoric iron. It has one quite useful property, and which is utilized to a great extent at the present time. It will whiten brass when added to that alloy, for which purpose it is often used, German silver being produced by the operation. There are two oxides of nickel: the monoxide and the sesquioxide.

Nickel monoxide (NiO) is of a peculiar apple-green color. Nickel sesquioxide (Ni<sub>2</sub>O<sub>3</sub>) is a black powder. The former uniting with acids to form the nickel salts; for nickel, unlike cobalt (and unlike iron also, as will be seen hereafter), does not have a double series of salts. There are quite a number of nickel salts, of course, but they need not be mentioned. It might be noticed, though, that the double sulphate of nickel and ammonium (NiSO<sub>4</sub>, K<sub>2</sub>SO<sub>4</sub>, 6H<sub>2</sub>O) is quite important in its way, being the salt used for nickel plating.

Uranium (atomic weight, 120; symbol, U). A metal discovered in 1789 by Klaproth, and so named after the planet Uranus, according to the alchemical fashion. It is quite rare, of a steel-white color. It is affected neither by air nor water at the usual

temperature; but, when heated strongly, it burns brilliantly. It has two principal oxides: uranous oxide (UO), and uranic oxide  $(U_2O_3)$ . The former unites with acids to form uranous salts, and the latter with acids to form uranic salts.

The chief use of these oxides is for the coloring of glass, the uranous producing black, and the uranic a beautiful yellow. Uranic salts have also been used to some extent in photography, and when their characteristics are more fully known in this direction, they may play a very important part in that art.

(To be continued.)

#### ALBUMEN PORCELAIN PROCESS.

BY GEORGE W. SCHELL.

To albumenize the porcelain plates, take the whites of a half dozen eggs, or enough to make exactly six ounces of albumen. Add

Water, . . . 4 ounces.
Fine Table Salt, . . 20 grains.
Liquid Ammonia, . . 30 drops.

Now beat the above until not only stiff, but until it is thoroughly crumby. This should be done in the evening, and set aside in the dark-room over night, well covered. It is a well-known fact that albumen cannot be filtered as clear and free from dust, and small organic fibres which are held in the albumen, as if left to remain standing for several hours to settle. It seems that the froth holds the organic matter, and allows the free albumen to settle to the bottom of the dish almost as clear as crystal. The albamen having been allowed to settle, it will be found that the froth on top has clung together, forming a complete protection from dust for the settled albumen under-

The clean albumen is now decanted into a clean graduate (the froth portion will remain clinging to the edges), and at the same time skim the clear albumen as it is decanted into the graduate, and it is now ready for use. The porcelain plates should be put into the acid dish for several hours, according to the strength of the acid, then well washed, rinsed, and hung up to dry. Now take a small piece of canton flannel, and saturate

with alcohol; moisten the surface of the plate with the alcoholic flannel, quickly following with a dry piece of canton flannel, and rub until dry; it is not necessary that it should be polished (this is done for the purpose of making the albumen flow freely and evenly). Now brush off the plate well with a camel's-hair duster, and wet the tip end of the fingers and thumb with your tongue, and lay the plate, back down, on the tips. This is done to keep the plate from slipping off the fingers. Now pour on enough albumen to cover the plate; when covered, allow the bulk to run towards the upper end of the plate, then quickly tilt the plate towards the bottom, so that the albumen will run off evenly at the bottom. Now allow the plate to fall back to its former position on the finger-ends, at the same time catching it by the lower left-hand corner, almost level, then hold it over the gas-burner, allowing the upper end of the plate raised a little higher than the lower end, and keep it moving right and left in circles, so that it will commence drying at the upper edge of the plate and dry downwards. As soon as the plate commences to steam at the top, it must be caught at the top right-hand corner (with a piece of clean paper doubled up between the thumb and forefinger, to keep from burning them), and tilted almost perpendicular, at the same time keeping it moving as above stated, so that it will keep on drying evenly from the top down to the bottom of the plate.

This manner of albumenizing the plates is to procure an evenly albumenized plate, being the same thickness of albumen all through. These plates *must* be kept in a thoroughly dry room, and free from dust. The writer generally albumenizes several dozen at once of the different sizes, and keeps them on hand, as they are better when old, and will keep for a year and more; in fact, freshly prepared plates do not work as well as the older ones, and the albumen has not had time to harden thoroughly.

Your plates now being ready for use, proceed to making up the following:

Silver Nitrate, . . . 1200 grains. Water, . . . 4 ounces.

Dissolve the silver in the water, take out

one-third, and set aside; add concentrated ammonia to the remaining two-thirds, which will, of course, turn chocolate color; keep on adding until clear; now add the one-third to the two-thirds. Now add nitric acid until almost acid, but still neutral. It will be observed that you commenced with a little better than four-ounce silver solution; by pouring into the graduate, you will find that it has doubled itself, that is, you have a prepared silver solution of eight ounces; this can be used until it is entirely used up. Flter, and it is ready for use. Now take your plate by the lower left-hand corner, thick end down, and flow on your silver in the same manner as when you develop a negative so as to cover the plate entirely, occasionally adding a little more silver solution. Keep moving around the plate about three minutes, then let run off, and drain into the dish previously placed underneath the hand and plate to catch the silver. Now hold the plate level, and pour on a little alcohol at the upper right-hand corner, allowing it to flow to the upper left-hand corner, and then evenly down to the bottom of the plate, quickly wiping the fingers, and catching the right-hand corner between the thumb and forefinger, at the same time holding the plate perpendicular, in order to allow the alcohol to drive the superfluous silver before it; let drain. Now pour on alcohol same as before, but let it run from corner to corner around the plate three times; then grasp the plate in the same manner as previous, and let drain. Wipe off the drops of the lower corners, and hold over the gas, face towards the heat, and dry, commencing at the top of the plate and drying towards the bottom, which it will do quickly; then hang up in the fuming-box and fume from five to eight minutes, and your plate is glossy and evenly prepared for printing. In printing, it should print a rich sepia, but should only be printed a shade deeper than the regular paper print.

Tone in the toning-bath used for albumen prints, but carry the tone a little further than you would prints that have been salted previous to toning. The porcelain print is merely washed under the tap a few minutes, and then placed in the toning-dish and toned. Soda them in the same soda as used

for paper prints, letting them remain for five to eight minutes. Wash in running water same length of time as paper prints. I usually wash both porcelains and paper prints about three hours, hang them up, and let them dry spontaneously.

Should my brother photographers undertake the *albumen* process and get cornered, I will cheerfully and willingly give them all the aid and information that they may desire.

#### NATIVE PROCESS-MONGERS.

THE great want of this country is a first-class process-monger "to the manor class process-monger "to the manor born." With the exception of one or two reputed "helpers" in Missouri, and a slight one "near Boston," there is not a single American, native-born process-monger at present in active practice, "from Maine to Texas," as President Bogardus so often used to remark. This is a very doleful and humiliating state of affairs, and there are many who are subjected to continuous and unmitigated chagrin on account thereof. are all persons of experience, and therefore all know that there is nothing which is more useful and delightfully amusing than a process-monger.

Take, for example, some of the foreign process-mongers who have sojourned in this country from time to time. Their usefulness is apparent from the manner in which members of our fraternity have absorbed by, from, to, in, and of them, and their contributions to "the other journals" are evidence of their strange power to amuse. They come over here and rent lodgings; patronize our butchers and grocers and wine dealers; try to smoke our cigars; ride in our hacks; and mislead poor photographers-well, we may render ourselves liable to a suit for libel, for you know how it is yourself-then sometimes they go back home with crammed coffers, and sometimes they don't.

Our sick and dissatisfied fraternity who, from overwork become sluggish and sleepy, are subjected to bloodletting (being bled) and eye-opening by these foreign examples of industry and enterprize, and ever after are more wide awake, and this thing has been known to last until the said monger was so

intoxicated with his success (or something else) that he gave up traffic and went back home.

Now it is simply disgraceful that this country, this glorious republic, has no process-seller, and that whenever we need bloodletting we must go abroad for our supply of bleeders. We are wholly dependent in this matter upon other nations, and if it is disgraceful to buy foreign lenses and apparatus at cheaper rates than our own, it is still more disgraceful to depend exclusively upon London and Paris for process-mongers. Every year thousands of dollars are taken out of this country by process-mongers, who came over here to enable photographers to lay in their supply of processes, when each dollar so spent is a direct injury to the United States. It is true that in turn Mr. Seavey sends his backgrounds to Europe, and the American Optical Company send their apparatus to all parts abroad, yet these European mongers are swallowing up American wealth, and only one of them has ever been known to throw up anything, and then only when he couldn't hold it; when the hated thing was actually outside of his control, then he acted like a lamb.

This state of dependence, we say, upon other nations, not only causes American money to leave the country, but it prevents foreign money from coming here. If we had a first-class process-monger, American born, located in St. Louis, and one in New York, or within easy reach, say in Newark, European photographers would come here to be bled, and we could have our own flesh and blood to fleece us ad silver nitrum infintum. It is true "the other journals" would have to

"Frow down de seissors and de paste,"

and find their vocation gone, but it would, though ever so mournful, cause a fall in the price of shears, and thus enable the editors and publishers who now live upon the advertising patronage of these foreign mongers to reduce expenses, and force them to call upon their dozen or so remaining subscribers for eleemosynary aid.

It is very strange that the Congressional "Committee for the Encouragement of Traps and Obstructions to Commerce," do not perceive the immense disadvantage under which we labor in consequence of our lack of the want expressed, and devise a plan for developing American process-mongers, thereby enabling us to compete with Europe; but photography always gets kicked and cuffed, and otherwise abused, and there we stand notwithstanding, and things "air as they air."

On one occasion in the history of photography there were a few far-seeing and patriotic men in Massachusetts, who, without Congressional aid, produced the lamented James W. Cutting, and tried to make of him what we so much need, a purely American process-monger. They utterly failed, and the Masonic brotherhood buried him. Little Connecticut then came to the rescue, and Jehyleman Shaw was advanced to the front by aid given in New York. Result, a great deal of trouble, a number of mortgaged properties, and we are yet without an American process-seller. So great was the want of such an individual, that at Buffalo the National Photographic Association tried to brace up Mr. Shaw, but for lack of earnestness, the effort failed, and we are yet withowell, we have said it, and we stick to it, that we are yet without a successful native

The only other instance on photographic record that we now remember of an effort to produce a native process-monger in this country, was at a time when one of our Western cities was being hoisted into renown. (We won't be personal; it was not St. Louis.) A moderately well-to-do photographer in Providence, Rhode Island (the very same person, probably, to whom good Horace Greeley said, "Young man, go West") apprenticed himself to a stockdealer for twenty-nine days and twentyeight nights, to learn the business. He then bought a horse and wagon, loaded the wagon with "stock," and proceeded on his journey westward. Going through the states of Pennsylvania and Ohio, he found photographers more numerous than he expected, and before reaching the Indiana border he had disposed of pretty much all of his stock in trade. His wallet was full but his wagon was empty. True he could have more goods sent on to him from the East, but the freight,

the freight would be dreadful. Should he drive back and load up again? Not he. He would try and sell some of his processes through Indiana, and thus gain the wherewithal to pay that freight. No sooner said than tried, for he at once came upon a virgin city, not over five months old, and with seventeen well-to-do picture-takers in it. He found out (and he originated this method of working, so popular with the foreign P.-M.) who was the "leading artist," and made known his business. This guileless photographer had heretofore "had everything given to him." What progress would our glorious art ever make if processes were bought and sold? and he was "surprised at any one thinking him green enough to buy a process!" Thus he argued with this visitor from Providence. Our would-be monger tried to "argue the case," but the result was, the photographer pushed him down the stairway erste posteriorum, and threw after him all his old defunct apparatus, broken printing-frames, etc., keeping up the shower until he could control his swearing proclivities, and then shut the door.

Poor P.-M. lay senseless at the foot of the stairs awhile, but on recovering his senses he looked about him, and said to himself, "Best idea yet. I'll gather up these things into my wagon, try the experiment again and again, and if so good results follow, by the time I get to St. —(No, reader, it was not St. Louis), I'll have enough stock aboard to start a stock depot." He followed up this idea, and realized his most sanguine expectations as to stock, but like all the other efforts to establish a native P.-M., his was an absolute failure.

Those who most need such an individual themselves defeated the project, and the abused object of their wrath is now—but we promised not to be personal. Many of you know him. The seven cameras "originally used by Daguerre;" the thirteen Darlot lenses, sans diaphragms; the forty-seven English model printing-frames; the eleven broken Excelsior camera-stands; the one hundred and six copies of Snelling's and Humphrey's Journals (for shame!); the three buff wheels, and the lot of old glass, plates, etc., shied at him, gave him a send-off which has made him—but we dare not, though it

is a constant temptation. However, he was not a success as a native P.-M.

But are we not made of sterner stuff than to be discouraged by these successive failures? Because all our paper comes from Europe, is that any reason why the P.-M.'s should too? Join us in the call, and if that does not produce what we want, Congress should be appealed to, to subsidize the effort, by a large appropriation, even if the English Parliament does tax photographers. The industry and skill of American photographers must be rewarded, and their efforts to produce purely home-made P.-M.'s, must be sustained. American photographers should be strictly prohibited from looking at European P.-M.'s, and a bonus be given to every one who refrains. With properly organized effort, and a sufficient appropriation, we shall soon have all we want. If we are to subsidize American railroads and American steamship companies, why not make effort to sustain American P.-M.'s, for who works harder, and stands more abuse and bloodletting than the American photographer? Are we not right?

#### GERMAN CORRESPONDENCE.

The Carbon Printing Process and Lichtdruck in Germany—Statue for Nicephore Niepce —Richard's Lightning Process—Art and Photography—Captain Waterhouse's Process of Photogravure.

WAS called lately as judge to a provincial exhibition held in Flensburg, embracing the industry of Schleswig-Holstein. Exhibitions of this kind flourish in Germany, whilst I never have heard that any of the English possessions, Ireland or Scotland, for instance, had undertaken an equal enterprise. We suffer here now under the impression of three exhibitions: the Schleswig-Holstein exhibition of Flensburg, the Silesian exhibition of Breslau, the Hanoverian exhibition of Hanover. I visited, until now, only the first one. Photography was amply represented and offered, without bringing any striking novelty, many very interesting points. It was quite astonishing for me to see that most every one of the exhibitors had exhibited carbon prints

alongside of silver prints, and that many practice this carbon printing process only. Berlin has about two hundred photographers; but I am convinced that not more than two of them practice this process on paper. The reason for it may be, that photographers in the provinces have more time to devote to their studies than those of the large cities; and those who would probably like to practice it, where would they find a printer? The most of the printers understand only the silver process. An equal surprise was given to me by the number of lichtdrucks exhibited. Most every one of the photographers has learned this process If they make business with it, it is another question; they certainly do not for common portrait work. Lichtdruck only will pay when repeatedly orders for several hundreds of duplicates come in; but to use it for one dozen of portraits is simply We have in Germany more lichtdruck printing houses than any other country in the world. All of them occupy themselves nearly exclusively with the reproduction of copper engravings, landscapes, illustrations for books, etc., and but little with portrait work. Ten years ago, the inventor of the lichtdruck process expressed to me the hope that lichtdruck would, in the course of time, throw photography from the market. This hope is not yet realized, and I think it will not be realized very soon.

It may be known to you that a committee has been formed for the erection of the statue of Nicephore Niépce, in Chalons. The committee have sent an invitation in the French, English, and German languages to all photographers of the world, animating them to contribute for the accomplishment of this work. I recommend this enterprize highly, because Niépce's merits for photography are too great not to be publicly acknowledged. He was the inventor of heliography, has introduced the camera obscura, and also was the first one who experimented with iodide of silver. He thus laid the foundation for daguerreotypy, died before his invention became known, and Daguerre, inheritor of his secrets, in pursuing his ways, reached, soon after him, that perfection in which he offered to the public his new invention. However thankful I may be to the committee for the happy idea in which it tries to honor Niépce's merits, I cannot altogether approve that passage of the invitation which, in describing Daguerre's position to photography, gives to the latter only the credit of a mere plagiarist who, in adding some insignificant improvements to Niépce's invention, has published the whole of the new discovery as his monopoly. This is an error. Daguerre found a very important operation which had been quite overlooked by Niépce, "the development" with mercury vapors. Niépce required long exposures in order to obtain, by means of the camera obscura, a visible impression on the iodide-of-silver plate; Daguerre shortened the exposure considerably, and brought out the picture by exposing the plate to mercury vapors. This discovery of the development gave to the invention a new necessary condition of vitality. This item alone should not be undervalued, notwithstanding all the merits of Niépce.

Whilst the "lightning process" has found its introduction in America, and Klary, of Paris, demonstrates it before the public, another "lightning process" has been introduced by Dr. Richard, of Mánnedorf, Switzerland. He has sent me some pictures, which were decidedly better than those which Klary has sent to me as samples of his work. Richard's exposure is a little longer (two and a half seconds for a cabinet picture); but the shadings are far much finer, and the darks much richer than those obtained with Boissona's process by Mr. Klary. Richard wrote me that he uses two baths; the plate is sensitized in the one, and after-sensitized in the other. A certain strength is required for these baths, and for this reason they cannot be used longer than eight days; after this they take a rest, and regain thus their usual strength. The real nature of this invention is kept a little obscure, certainly, because he intends to sell his process. That the use of two baths has its advantages is generally known, and has been first proven by Osborne, if I have a good memory. It has also been introduced for portrait work; but if the advantages are great enough to justify the inconveniences to which it leads, is a question which practice only can determine.

However zealously art has been studied by photographers, there are still many who cannot understand why photography should not do the same that painting can do. Lately I was at a soirce of artists. Many tableaux were formed, Judith and Holofernes among the rest. A very nice looking Jewess, with dark hair ornamented with gold, in oriental drapery, represented Judith. They could not find a better subject for this character. An Egyptian officer, who serves in our army, with his dark hair and beard, in a nice oriental drapery, had taken the role as A red cord around his neck Holofernes. made the effect as if his head had been cut off. The well-chosen background, the position of Judith, who held with her left hand the hair of Holofernes, etc., made altogether an admirable effect. The entertainment was general, and one photographer expressed the wish to take a picture of it. It was understood, and everything transported to his studio. The artist who had set them on that evening arranged also the position now, and the taking was carried out under the most favorable conditions. Everybody who had seen the tableaux liked the picture, to our photographer's greatest delight; but great was his disappointment when thousands of faults were found by those who had not seen the tableaux. Judith was nice, but nothing was to be seen of that terror which necessarily has to be found in her features after a crime. Gold in her hair and the red of the drapery formed one black mass. Holofernes, so Professor R- told me, has the looks of a sleeping, and not of a dead person, etc. Certainly those who had seen the tableaux could add by their phantasy everything that photography could not show; thus the picture was for them a nice remembrance. Besides this, it is an example among the rest, that many things may create a surprise for the time being, but that they are by no means masterpieces will be found out when photographed.

Captain Waterhouse, the excellent chief of the photographic department of the surveyor's office of Calcutta, India, has published, recently, an interesting work, "The Application of Photography for the Reproduction of Maps, etc.," in which he also describes a method for making zincogravures, which is

much similar to Goupil's method. The latter, originally invented by Woodbury, improved by Rousselon, is still a secret. All that is known is that Goupil, in Paris, produces first a bold relief picture, which serves him as a pattern for the manufacture of a metallic printing-block; but it is not known yet how he produces the grain in the gelatin relief, which is necessary for the production of half-tones, and how he reproduces his grain on the metal. Goupil makes plates of twenty-five inches square, which cannot be obtained by hydraulic pressure, after Woodbury, but very probably by means of galvanism. The grain in the gelatin, so they say, is produced by adding fine sand or glass powder to the gelatin; others reject this idea, and say that the grain is obtained by the use of chloride of lime. Alongside of all this supposition, it is interesting to see Waterhouse's results. He makes a carbon print, transfers it to a copper plate, and tones it with an alcoholic solution of tannin, 5:100; after this it is reproduced by galvanism. The toning with tannin gives the gelatin film the grain, and prevents it from swelling in the copper-bath. I obtained with his method some copper plates, in copying a negative very long on carbon paper, transferring to glass which was coated with a gelatin solution, 5:100, and toned with chrome alum. After development on this plate the picture was toned with a tannin solution, dried, rubbed in with a solution of wax in turpentine, and finally rubbed in with graphite; it was then ready for the galvanic reproduction. This is the way in which Waterhouse produces plates for halftones. Truly yours, H. VOGEL. Berlin, Sept. 5th, 1878.

#### FRENCH CORRESPONDENCE.

The Exhibition—Spirit Photography—Mr. Henderson's Quick Process—The Enamel Process—Electrical Photography.

THE Photographic Society of France has taken leave of the capital to visit other climes, or to breathe the fresh air of the seaside. Photographers, as a class, are not contented with their receipts this year; is it that they expected more from the Exhibition? I know from experience that the Ex-

hibition has dore good but to hotel-keepers and purveyors; as to the *bourgeoisse*, additional rates and taxes, with the elevated prices of provisions, make them complain bitterly, and with a certain amount of reason.

Is it the influence of foreigners into this gay, frivolous, and if not unbelieving, at least heedless city, that spiritism has come into favor here? Believers and unbelievers are springing up like mushrooms.

The only thing that I am acquainted with, and which interests photography, is this. One of my customers for dry plates, a very rich and respected gentleman, assured me upon his honor, that he was able at the present time to take portraits of spirits in his private room, the room being completely darkened, and not a vestige of light to be seen. As he employed but my dry plates, I was certain that no trickery could take place, and pressing him with questions, he told me that by the aid of the medium the spirit was evoked, and that the portrait was obtained in the dark with two seconds of exposure. I then begged him to show me some of the negatives that he had been able to obtain. Three weeks last Sunday he brought me about a dozen negatives. Only two were sharp; the others were in all shapes and forms. The one, the portrait of a very fine young woman, about the age of thirty to thirty-five, beautiful in form, of the appearance of a chefd'œuvre of a great sculptor; it could be taken for the reproduction of such a statue by a nonobserver, but upon serious examination it was easy to discover that it was not the reproduction of a marble or plaster cast. The hair was flowing down her back in profuse locks, even to her very knees. I put the negative under microscopic power, in order to trace whether the hair was natural, by its tubular conformation or otherwise; want of sharpness prevented this. The feet were out of focus, and altogether the portrait had the appearance of the old painting of the Immaculate Conception, in which we see the Virgin, as it were, rising upwards towards heaven; in fact, nothing indecent about the whole negative. I took a positive by transparence of this negative, and it has excited the wonder of the many who have seen it. The other negative was that of a very old man, an ancient sea-robber, so it appears according to statement. His beard was prodigiously long, hanging down nearly to his feet. The other negatives were very confused, as it appears the spirits have no little difficulty not only to keep together, but also in the focus of the lens of the camera; some appear, as it were, floating in the air; others without their heads, others dislocated, and some without a certain form; in fact, without being a believer, it may be said to be strange and unnatural.

Now for the anti-spiritism. A gentleman named Mr. Cazeneuve gave a lecture at the Sorbonne on prestidigitation, in which he gave experimental proofs that there is nothing marvellous nor supernatural in the phenomena said to be produced by spirits. He says to the spirits or their mediums, "Whatever you do, I will do it without requiring darkness, and at the same time I defy you to do what I do." (I wish not to speak against spiritism, for, in my opinion, it is better to believe in spirits than in nothing at all; but let us seek for truth, and if photography can be brought into play, and spirits are willing to sit for their portraits, or, as they say, "that the Almighty, seeing the wickedness of the present generation, permits them to make certain manifestations in order to draw mankind from error," there is a truthful medium called into action, and in whose "mouth there is no lie.")

In my last letter I spoke of a very rapid process by Mr. A. L. Henderson, of London. Since that time I paid a visit to that gentleman in his studio at London Bridge. Mr. York, the well-known photographer of Notting Hill, London, and Mr. Bruton, of the Cape of Good Hope, were present. Mr. Henderson made the portrait of the firstnamed gentleman in one-half a second, the bath and developer having been made by the same formula as I sent in my last to the Philadelphia Photographer. Not only is. Mr. H. a first-class manipulator in the ordinary portraiture, but he has brought to such a high state of perfection the enamel process, that his works are sought after and admired not only by the royal family of England (who give him their high patronage), but by every one who takes an interest in having a work of art, which is an everlasting joy, as it remains forever. The details of Mr. Henderson's enamelling process, by which he has acquired such justly deserved renown, would be too long to be fully stated here; suffice it to say, that Mr. H. went through the whole operation, from beginning to end, without hiding the least from me, for which I publicly tender him by best thanks. A negative was taken of me at nine o'clock in the morning, exposure five seconds (it being a dull and cloudy morn); from it a portrait was obtained by the ordinary silver-bath; this positive was placed in a solution which converted the silver into a substance unacted upon by the different solvents afterwards employed; the positive was then plunged into what Mr. H. calls a depositing-solution, the longer it remains the more metallic oxide, combined with a flux, is deposited upon the image. The collodion bearing this image was then placed in a dish of water slightly acid, the collodion then left its glass support, the enamel plate was slid under it, lifted up, and dried. The operation of burning in took about one minute, and a beautiful glazed enamel was produced.

I was enchanted, having been accustomed to the difficulties to produce enamels by what is called the dusting-on process, that is to say, a solution is poured upon a plate of glass, dried, and placed under a positive, and set out in the light, the greater the light the more hygroscopic it becomes; when taken into the dark-room, a camel's-hair brush filled with metallic oxide is passed softly over the surface; the high-lights will soon begin to attract the metallic dust, and so on, in proportion as the light had penetrated through the positive, so causing it to become more or less sticky in the different parts which give light and shade to the portrait to be produced. When sufficient color has been taken up, and the image found to be good, it is then transferred to the enamel, a flux is dusted upon it, and then fired. But great care is required lest the image should lose vigor, or disappear by the action of the heat. Not so by Mr. Henderson's process; the image cannot be fired too much. I saw an enamel in his furnace, in which the enamel were as it were liquefied; a knife put upon it cut it through to the copper support without the photographic image being destroyed. In fact, durable images can now

be obtained very rapidly, quite as quick as a silver print. Naturally they will remain dear for a length of time, as it requires great skill and great tact in manipulation to bring any picture, good or bad, up to a work of art.

I return again to this gentleman's rapid wet process, and persuade the readers of the *Philadelphia Photographer* to employ it. I can testify to its rapidity, having sat for my portrait in several London studios during my week's stay, and in no other studio did I sit less than twenty-five seconds.

I paid a visit to Mr. Van der Weyde's establishment, where portraits are taken by artificial light. I here sat for my portrait, twenty-seven and a half seconds exposure, cabinet size; the light, although very powerful, was not at all fatiguing; it was produced by a dynamo-electric machine, worked by a gas engine placed in the basement of the house, resembling in its general arrangements the Siemen's light used in lighthouses. The spark is produced in the centre of a large parabolic reflector, and is hid from the sitter by a small earthen ware basin; the light can be made to fall upon the sitter from any angle; the whole figure is, as it were, flooded by beams of soft, pleasant, white light, which do not fatigue the eyes, and give perfect modelling of the features. I must confess that my negative was the softest and best defined that I had during my short stay in the metropolis. I consider this to be a boon during the winter in foggy London, and I wish the inventor every success.

PROF. E. STEBBING.

27 Rue des Apennins, Paris.

#### A FEW FUNNY THINGS.

MANY funny things are said in a photograph gallery, which, if preserved, would make the bones of Artemus Ward shake with laughter, and make Josh Billings feel that he is not the only person who can produce a roar of laughter.

I remember a few (to me) funny occurrences, and if you think them sufficiently amusing, you can use them in the *Photographer*.

On one occasion, I asked a lady customer: "What style of picture would you like to

have?" She replied: "I think I will take the vinuette, and you can give my mother a sitting porture."

Others, in desiring vignettes, have asked for "gazettes," "besettes," "jakenettes;" and the worst of all wanted "beretz."

A nicely dressed young gent, when asked how he would like his pictures made, replied that he thought he "would like to have them taken a *little bias*," meaning side face.

A lady, only a few days since, desired a "three-cornered view of her face."

Some years since, when standing an Irishman for a photograph, I had made the position, took the cap off, turned my back to the subject, and inclined my head a little while I counted the time. When the exposure was about half made, he astonished me by asking, "Would you plase and tell me what you are studying about,?"

At another time, under much the same condition of things, I took the cap off, and turned my back from the subject, telling him to keep still. When I turned to replace the cap, I found that the dummy had sneaked quietly up to the instrument, his nose almost touching it, to see how the picture was made.

A photographer, heaven help him, in looking around the gallery, spied a large camera box that was covered up, and asked what kind of an instrument it was; he was told that it was a "double whole." Curiosity led him to examine it more closely; raising the cover, he looked all around, then raised his head, and very innocently said, "Why, I can only find one hole."

A man told me, a few days since, that he knew "all about photographs, but could not tell whether the *native* was good or not." He meant negative.

GEORGE M. BRETZ ("Beretz").

#### FRENCH ITEMS PHOTOGRAPHIC.

DR. Phipson, in his correspondence published in the Paris Moniteur, alludes to a photographic process for printing music, shown to him by Mr. Francois Jacquin, a French gentleman, who had just returned from the Indies. Mr. Jacquin says that by his process he can obtain, without much trouble, a sufficient number of copies for an orchestra much quicker than they can be

copied by hand. At the time of his visit to Dr. Phipson, this last was playing the violin. "Give me the sheet of music from which you were playing when I entered," said Mr. Jacquin; "let us go into the garden, and I will show you how easy it is."

When they had arrived in the garden, Mr. Jacquin took from his pocket a small bottle, which appeared to contain a kind of collodion, as it smelt of ether. He poured a little of the liquid upon a glass plate which was about three-eighths of an inch in thickness, and it rapidly became solidified by the action of the sun. "Unfortunately," said he, "my plate is not big enough to cover the entire sheet of music, but I will do the title; see;" and whilst speaking he applied the words of the title-page to the plate, which he very solidly fixed by two or three wooden clamps. He then rubbed the paper for a short time with the open hand, as if to electrify it, and kept it in contact with the plate for about ten minutes, without removing the hand which pressed it against the surface of the collodionized glass; he then detached the paper and gave me the plate to examine, upon which I saw a perfect impression, both by transmitted light and reflection. "Tomorrow," said he, "I leave for Liverpool, where I shall remain three days with a photographic friend, and I will send you the reproduction of this sheet." To-day the post has brought me this reproduction, and, except that the paper is whiter than the original, it is impossible to discover any difference between the two.

Mr. Jacquin has started for the United States, and before leaving he gave me permission to describe this little experiment, and has promised to make known his process as soon as he gets a patent.

In his last voyage Mr. Jacquin became acquainted with an American who had saved his life in an extraordinary manner, after having swallowed, accidentally, a considerable quantity of a poison, the name of which I have forgotten. As soon as he perceived his error he drank a large tumbler full of olive oil; then, at the end of ten minutes, another tumbler of the same liquid. He felt no bad effects from the poison.

It is well known that a small quantity of

acid has a very injurious effect on bichromatized gelatin, which it renders insoluble, especially if the gelatin is yet damp. To prevent this accident Mr. Bolas recommends the placing of a small piece of carbonate of ammonia, wrapped up in paper, in the tin box which is used to preserve the gelatin preparations. This prevents the action of the acid emanations which might from time to time find access there.

As the thermometer rises, the difficulties of carbon printing increase. It appears, however, that heat is not to be feared if a little alcohol is used in the bichromate bath. This addition has the incontestable advantage of preventing the gelatin from becoming too soft when it passes in this bath, and, moreover, it accelerates in a notable manner the drying of the film. Mr. Bolas gives the following formula for the bath:

This solution should be kept in the dark, as otherwise the bichromate would react on the alcohol, and filtration would become necessary before using it. According to Mr. Bolas, who has had a long experience in the matter, those who use this bath, and besides a mixture of nine parts of water and one part of alcohol, to soften the tissue before mounting, have nothing to fear from the heat of summer. The diluted alcohol may be used several times, but it must be filtered from time to time. The methylic spirit named in this formula is the impure alcohol of commerce, which contains a certain quantity of wood spirit. It is cheaper than ordinary alcohol.-Moniteur.

From the Bulletin de la Societe Française de Photographie, we learn the following:

In Germany much noise is being made about a pretended discovery of Mr. Obernetter. He conceived the idea of placing the nitrate of silver in the collodion, and of producing the bromide or iodide by plunging the collodionized plate into a bath, holding in solution a bromide or an iodide soluble in the proportion of one to twelve; as the plate thus prepared is eight times less sensitive

than a wet plate, he covers it with a solution of nitrate of silver at five for one hundred of water, which he neutralizes with ammonia, so as to produce a slight turbidness. He makes use of the alkaline developer.

Here again it is in the old baggage of Mr. A. Poitevin that we must seek for this new invention, as on the 20th of April, 1860, he communicated to the French Photographic Society this new method of preparing collodion. In 1864, the Abbé Arrouis, in a pamphlet published at Poitiers, under the title of Photography Improved, New Processes, putting to profit the discoveries and processes of Mr. Poitevin, pointed out a tannin process based on the same reactions. Finally, at the end of 1871 or commencement of 1872, Mr. Monckhoven also gave a method of preparing the collodion nitrate. This little recital of facts shows that it is to France that we must look for the invention of this modification.

We must not leave Germany without alluding to the new process of Mr. Albert, known under the title of *Photography in Natural Colors*, and which is nothing more than the process of Mr. Ducos du Hauron, except that instead of the superposition of three pellicles of colored gelatin, Mr. Albert prepares three litho-photographic plates, prints the three colors one over the other, and obtains an image similar to those of Mr. Ducos du Hauron. To this last, therefore, belongs all the honor of the invention.

Mr. Janssen presented to the Society a magnificent print representing the solar disk. This print results from an enlargement of three diameters of an original negative of the sun, having a diameter of eighteen inches, obtained by the new method applied by Mr. Janssen, and reducing the exposure of  $\frac{1}{3000}$ . It shows the granulations of the solar surface, and the rays in which these granulations are partly effaced by the action of the great ascending currents of hydrogen. Mr. Janssen has also sent to the Exhibition a similar print, a second one, showing an enlargement of nine diameters, and also a transparent print.

A number of prints of the Universal Exhibition were shown, made by the emulsion process of Mr. Chardon. A rectilinear Dallmeyer objective, with a diaphragm of one

inch was used. The outside exposure varied from five to seven minutes; for interior views sometimes fifteen minutes were required; in the darkest parts good details were obtained, and the negatives will give good prints.

Messrs. Janard & Guillot exhibited some specimens of photographic printing on silk. These impressions differ from those already known, inasmuch as Messrs. Janard & Guillot print in a continuous manner pieces forty-five yards in length.

Photographic printing has the advantage of giving modellings and half-tones, which would be sought for in vain by other methods. They can print from the smallest sizes up to a yard square, and for large subjects they make use of a special lens made for them by Mr. Darlot. It is a silver process, and all the operations of sensitizing, printing, washing, etc., are done mechanically.

Mr. Woodbury sent some photoglyptic prints made on sheets of transparent gelatin. With these prints it is easy to produce photographic windows by confining them between two plates of glass. They can easily be applied to curved surfaces.

Mr. Woodbury also sent some plates made by him with the emulsion of Mr. Mawdsley during a long journey that he made in Italy. By using his process of removing the clichés, during the whole excursion he used but six plates. These, with a bottle of emulsion, and some paper, composed his whole photographic baggage during a voyage which gave him many negatives.

Galignani says there are more than two thousand photograph galleries in Paris, employing upward of eighteen thousand persons, and doing a business of more than thirty million francs a year.

M. DE PARVILLE writes enthusiastically of M. Reyner's new electric lamp, which seems to be as easily managed as an ordinary oil lamp. A rod of carbon, from twenty to thirty centimetres long, and from one to two millimetres thick, is held at one end by a metal rod which tends to descend by its own weight, and at the other by a carbon wheel in a vertical position. The carbon is pressed strongly against the wheel, which is made to revolve slowly. A current of electricity

from a battery of from four to six of Bunsen elements, raises the carbon to a white heat at the point of contact of the rod with the wheel. A splendid light is produced. If a high degree of luminosity is required, the heated portion of the carbon may be increased at pleasure. Break the current, and the lamp is extinguished. Restore the connection by turning a knob, and the light flashes forth. The battery may be stowed away anywhere, and any one can use this illuminating contrivance in a house or workshop without being annoyed with the difficulty and expense of maintaining any magneto-electric machine or steam-engine.

Solubility of some Organic Acids,— E. Bourgoin has determined that one hundred parts by weight of pure ether, absolute alcohol, and ninety per cent. alcohol, dissolve at fifteen degrees C. (fifty-nine degrees Fahr.) the quantities of acids given in the following table.

Acid.		Pι	ire Ether.	Absolute Alcohol.	90 per ct. Alcohol.
Benzoic,			31.35	46.68	41.62
Citric, .			2.26	75.90	52.85
Gallic, .			2.56	38.79	23.31
Oxalic, .			1.266	23.73	14.70
Phtalic, .			0.684	10.08	11.70
Salicylic,			50.47	49.63	42.09
Succinic,			1.265	7.51	12.59
Tartarie,			0.400	25.604	41.135

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 10.

The Retouching of Negatives; the Tinting and Coloring of Photographs; the Improvement of them in other Ways.

"THE art of drawing and photography touch each other in so many points that it is believed that we can demand from the one what we exact from the other. While photography preserves as its advantage an almost absolute fidelity in the details, we miss the æsthetic freedom which the artist in drawing has to so large an extent at his command. In reproducing the gradation of tone, the dependence which we can place on photography is limited. The difference in the effect of the different colors, the relation of light and shadow must, as is

well known, be accomplished by retouching, especially by retouching on the negative plate. Thus it happens that every photographer, by covering the too transparent parts of the negative, as freckles, small but too prominent wrinkles, etc., removes or modifies them, and without harming the result.

"While we have been struggling for a long time against these drawbacks of the purely chemical operations, it became evident that in proportion as the knowledge and the means of retouching became developed, the desire increased to bestow on the plain photographic image, with pencil or brush, all those little embellishments which the printer, perhaps unconsciously, but guided by his good taste and knowledge, bestows on his creations. We must add to this, that time, material, and the purpose of his art, forbids the painter to enter into all the little trifles and accidents of the appearance; and he avoids a number of the disturbing influences to which the photographer, who has to work his rigid chemical processes, is exposed. To what extent it is admissible to remove, to alter, or to modify these drawbacks by means of retouching; to what limit we can add to the picture in the interest of beauty without detriment to the likeness; to investigate these questions, and to indicate the boundary to which retouching may be carried, is the purpose of these lines. The general picture of the beautiful, the idea of it, is in every one's mind; in the particular instance to separate the essential from the indifferent, to find out what gives effect, and what is irritating, is a matter of practice, and requires an eye trained for the purpose. The perfection of the technical part, the extent to which the execution is to be carried, is, in each individual case, dependent on the personal knowledge and the taste of the artist.

"In contemplating the human head and the formation of the face, we observe that those parts where the underlying, rigid, bony structure is most prominent, are subject to the least variation. The surfaces of the forehead, the root of the nose, the jaws, the margin of the sockets of the eye, always maintain their relation to each other. They determine the likeness in conjunction with the position of the slit of the eye and the mouth, with form and direction of the nose, and the most prominent parts of the chin. More or less contraction of the muscles, particularly of the closing muscles at the angles of the eyes and mouth, give the expression.

"With both of these positions of the face, which are the controlling elements in giving it its form, the helping hand of the retoucher has to proceed with the utmost care. With regard to the third part, the skin, which partly gives roundness to the different forms, we can proceed with much more freedom. particularly where the hair, accumulated fat and flabby parts, and wrinkles, present themselves. We must not forget that the skin, which forms everywhere the surface, in consequence of spots and impurities, very often exercises a greater chemical action than the lower forms, which are generally distinguished by a delicate variation of light and shade. To give due prominence to the latter, and to reproduce solely the variations of light and shade, to exclude the disturbing element of color, is the main purpose, and the main difficulty, in retouching. Let us try to demonstrate these principles in detail, and to get them understood. Let us follow the relation of the different parts of the face, its changes in old age, its differences in the sexes, its value for expression and likeness.

"The forehead, very round and soft in the child, becomes expressive in the man, and divided into distinct surfaces, and forms a prominent feature of the character. The upper part of the forehead shows the forms of the skull the best, and with the least variation, only the lower part of the forehead, just above the eyebrows, is enriched with a very movable set of muscles.

"With suitable illumination, the surfaces of the upper forehead become distinctly separated, and the care of the artist should be directed to clearly define the boundaries of these surfaces, and to make them appear as an harmonious whole. A forehead which is too round is admi-sible in the female, but in man it looks too feminine, and lacks beauty here more that anywhere else. The defining of surfaces is in order.

"The wrinkles on the forehead are regulated by the attachment of the skin to the lower part of the forehead. They form hori-

zontal grooves which run parallel to the ridges of the sockets of the eye, and finally disappear at the sides. As they make their appearance in middle-aged persons, and as they follow the forms of the forehead, we may let them remain, and only need to soften them. The vertical cross-wrinkles, which make their appearance in advanced age, make an unpleasant expression, and should be removed entirely. Only the two main vertical wrinkles, which proceed from the root of the nose, and which divert the horizontal wrinkles, should remain.

"The margin of the hair at the temple is very soft, and a great attraction for the painter. The eyebrows, which vary greatly in thickness, color, and form, have, by following the lines of the sockets of the eye, the æsthetic value of being their limit. It is well to remove the hair which grows too strongly upwards, and to preserve the arched form of the brow. A meeting of the brow above the nose is considered ugly; it gives to the face a sinister expression, particularly as in this place there is a shadow already.

"The sum of the labor of the retoucher could hence be expressed as follows: Definition of surfaces; a consecutive separation and treatment of hard and soft hair margins; subduing or removal of vertical wrinkles, and a modified preservation of the large horizontal wrinkles; defining the arch of the eyebrow. How far these operations can be carried depends, of course, on the age and sex of the original.

"The head seen in profile very often shows a want of expression in the back part. Smallness in the back of the skull, in contradistinction to enlarged development of the frontal parts, imparts the characteristics of an animal. The deficiency should be supplied by retouching, and the head will gain in importance. Also, where the hair has been arranged in an unsymmetrical manner, we can easily reach the necessary balance by adding here a piece, or deducting something at another part. Blonde hair, which generally takes too dark, can be heightened by laying color over it, while in the more exposed shady parts of dark hair, the necessary harmony can be produced by drawing in the details. Beards and whiskers should be treated in a similar manner.

"What we have said of the bony structures of the forehead refers also to the upper part of the nose, the lower part consisting of a firm muscle, which offers more or less surface. The ridge of the nose should be clearly defined, and when necessary, a highlight should be placed on it, to separate it from the side surfaces. The shadows of the nostrils must be covered, and the sides can be reduced where they are too prominent on account of size. Crooked or oblique noses in the front view very often admit of improvement. The shadow in the nostrils must not remain absolutely black. Attention should also be given that the heavy shadow under the nose is not of the same depth with the side shadow; by lighting the point of the nose a little it dissolves itself at once, and becomes more plastic.

"In a profile view, it is not admissible to alter anything in the characteristic form of the ridge of the nose. The fleshy part, on the contrary, which with advancing years sometimes becomes unusually large, can be reduced in size without any material detriment to the likeness.

"The mouth, in its mobility, in the depression or elevation of its corners in its larger or lesser expansion, is a main indicator of mental processes; particularly with children, skilful retouching can retrieve what was lost in the taking of the picture. To begin with, the lips should be separated from the slit proper; also the angles should be closely defined; next, the ugly cracks of the lips should be entirely obliterated. The form of the mouth can be materially improved by clearly defining its margins. When, with advancing years, the lines of the mouth become lost in the wrinkles of the corners, it is well to modify them; at least they should not be left as sharply defined as the lips. Above the mouth also, depressions and wrinkles show themselves, particularly in elderly persons, thus easily giving the impression of an unshaved beard. They should be removed. But attention should be given to the different values of light and shade of the parts which are located between the mouth and the nose, particularly the elevated portion extending from the dividing line of the nose to the upper lip. The sharp definitions of the

outer lines of the lips are very variable in different individuals. Soft, thick lips receive more light than those of normal form. In the former case, the outlines should not be too clearly defined, as this would give prominence to a form, which is not warranted by its light effect. The angles of the mouth may be modified, and in the heads of elderly persons, reduced in size, but should never be entirely obliterated; this modification can be made stronger in the lower than in the upper lip, for when the corners of the mouth are drooping, they indicate weakness, sorrow, or other unfavorable Teeth, generally, are much expressions. shaded; to obliterate them completely, by removing the opening between the lips, is sometimes desirable, except where the opening is considerable, when the lips become too

"The eye is of so much importance as one of the most prominent parts of the face, that already, during the sitting, the principal attention of the photographer is given to its direction, its expression, and its surroundings. Notwithstanding all this, there is plenty left for the helping hand of the retoucher. I will mention a few instances. The clear and steady expression at the beginning of the sitting becomes disturbed, the lids and eyeballs sink almost imperceptibly, and the high-lights in the upper part of the latter become indistinct, or are entirely covered by the lashes. It is easy to improve here. The edges of the iris should be sharply circumscribed in the negative, and the high-lights should be covered. It frequently happens that the high-lights in the eye, on the shady side of the picture, are stronger than those of the illuminated side; it is self-evident that a medium effect must be produced here. In a similar manner the lower lids frequently lack sharpness, on account of the repeated shutting of the eyes. On the edge of the lids we generally find a sharply defined and very prominent light, generally brighter than the tone of the white in the eye; this light is easily defined and intensified. Through the white of the eye we frequently find, and this is particularly the case with aged persons, numerous small arteries intersecting it, which in the photograph give a motley and spotted appearance. These can be removed entirely, only attention should be given that the white does not become too bright.

"Regarding the surroundings of the eye, the fleshy part above it is apt to appear too dark, and become unpleasant. The aim should be to lighten them and the evebrows, also the wrinkles above the eye, and the photographic gradation of tone should be made to correspond as nearly as possible with the natural ones. The so-called tearbags under the eye generally throw a shade which looks too dark in the picture. The wrinkles, which in aged persons almost invariably make their appearance here, may, in a modified form, and in their horizontal direction, be maintained; only the lines running crossways, which always give an irritating effect, should be obliterated; this gives clearness to the lines which run parallel with the lower margin of the eye, and which in their inner end point toward the angle of the eye. Immediately adjoining the lower of these lines, is the flesh of the upper cheek, which firmly rests on the bone ridge which forms the socket of the eye, and which in its almost invariably recurring arched form, should be preserved, collecting the light on it. A shadow extending under the eye downwards, is either a consequence of a darker color, or of a deficiency in flesh, which gives to the face a neglected and sorrowful aspect. When this is not very prominent, it can be removed entirely; otherwise it can be modified to a considerable degree. The wrinkles in the corners of the eyes, the so-called crow-feet, are too characteristic to be obliterated entirely.

"The cheeks are, in their outlines and surfaces, determined by the prominence of the cheek-bones. A certain view will bury the cheek-bone in profile, and will give it too much prominence. This want of beauty, which is peculiar to the Mongolian races, is easily remedied, by cutting off the too prominent curve of the bone. As to the surface formation of the cheeks, care should be taken for a gentle, but at the same time, determined, separation of the front and side parts, to avoid the shadows which indicate excessive thinness. Where exposure to the weather has darkened the cheeks, as is the case with soldiers, or people who lead an

out-door life, the surfaces should be covered on the back of the negative.

"The chin is, in old and fleshy persons, generally provided with a cushion of fat, which, extending downwards, covers a large portion of the throat in a manner by no means beautiful, and by giving too much breadth to the lower part of the face, causes ugly proportions of the head. As we have already remarked above, collections of fat, being merely external, are the parts of the face most accessible to retouch.

"In profile views, parts can be cut off. In full-face views, by removing the lower folds, a part of the so-called double chin can be united with the throat, and the side has to be changed correspondingly. The dimple in the centre of the chin has to be modified, as it often takes the form of a cut, or a dark tint.

"What I have said above in regard to the chin, refers almost with equal force to the neck. Where the neck is thin, the artist will do well to cover the shadows which are produced by veins, arteries, sinews, etc., and by corresponding additions or diminutions to bring about a form. The same may be said of the shoulders, the bosom, the arms, waist, and hands. course we can proceed here with more freedom, as the parts mentioned have not the same value in producing the likeness as the different parts of the face. Angular and thin shoulders, thin arms, a deficient bosom, and all the shoals threatening female beauty, the painter should avoid under all circumstances, and the photographer may do likewise whenever his taste, and his knowledge of the normal form permits him to do so. This refers also to crooked outlines of the hair, to the removal of folds in ladies' illfitting dresses, as they appear so often in the sleeves, or on the shoulders; likewise in the pantaloons of gentlemen.

"It is certainly a circumstance in favor of retouch, and particularly of the negative retouch, that by skilful manipulation, a number of shortcomings may be avoided, which by arrangement, position of the original, and all kinds of experiments, can only partially be overcome, and which would give the parties concerned a great deal of trouble.

"These then are, generally speaking, the principles which should be kept in view in a retouch which has for its object something more than giving a superficial smoothness to the picture. I feel convinced that every artist who attempts retouch, carefully and with judgment, will be able to produce lifelike pictures, while an indifferent covering and smoothing of dark parts produces those chalky and bloated faces, in which the want of anatomical modulation of a natural grain and the healthy roughness of the human skin is replaced by a smoothness and polish which is carried to the extreme. By drawing from nature, by constant study of portraits of the masters of modern and olden times, by the collection of good pictures, taste and judgment can be educated. I do not think that I go wrong in stating that this easy way will lead any one to the desired end."

(To be continued.)

[Mem.—So much space has been taken by Mr. Gihon in this month's issue of the Photographer, by the dissertation on the all-important subject of negative retouching, that we find it impossible to include the other matters promised in the heading of this "Scrap series." We can do no better than to refer you to the recent publication entitled the Photographic Colorists' Guide. It is written by the compiler of these "Scraps," and naturally contains more details than could possibly be allowed to magazine articles.—Ed. P. P.]

#### SCATTERED THOUGHTS.

BY F. M. SPENCER.

NINTH PAPER.

(Continued from page 104.)

DOUBTLESS the introduction of the ferrotype, popularly called tintypes, as a style of photographic picture, was a misfortune with few mitigating features, but since we cannot "wipe out" facts, we must accept them, and seek the best remedy possible, and I regret that it is not "possible" to consign them to the fate that has befallen the more deserving daguerreotype. I see no practical remedy or means of suppression,

save the one applicable to drunkenness and kindred destroying vices; and that is, to so tone up the public taste as to destroy the demand for them. I should regard it little less than an open insult if a friend should offer me one of them in exchange for a photograph; I should feel upon concluding such a transaction that I had been cheated, and been a voluntary party to the cheat.

Now it is by no means a rule, that the offer of such unequal exchanges is prompted by dishonesty; far from it; it is ignorance quite excusable, because it has been fostered and endured; thousands of intelligent people in other respects, fall into the error; it demands the exercise of our patience, and free use of our educational faculties. To say that it is entirely impossible to make a "tintype" equal to a good photograph, is not enough; it is proof that is wanted. Take a good photograph and contrast it with the best tintype, and point out the fact to the customer that the highest light in a photograph is quite pure white, and the opposite extreme a pure shadow of equal, if not superior, intensity, with the color of the iron plate. Now, suppose that the photograph contains twenty grades of distinct tints, and point out the highest light of the tintype as a dull gray tint, corresponding to, say, number ten of the photograph, so that the photograph has an absolute advantage of ten points in breadth; so much will be quite easy of comprehension to the ordinary observer after once being made to see it; but it by no means follows that the two kinds of pictures are of equal value between points ten and twenty respectively, for at least two obvious reasons: First, that the tints between ten and twenty extend over the entire surface of the tintype picture, tending much to flatten it; while in the photograph, ten and twenty are not more than half so far apart, a quality favorable to roundness, vigor, and brilliancy, much to the disadvantage of the tintype. Second, all the apparent tints of the tintype are made up by the reflective power of exactly the same tint of unpolished metallic silver, contrasted with more or less of the same shadow tint given by the plate itself; while in the photograph, there is a decided difference of color of the tints, as well as superior transparency of the darkened chloride of silver, to the metallic silver of tintype; so that some of the tints between ten and twenty of the photograph, must be missing in the tintype.

I would not overlook another principle in drawing and painting: that experience has demonstrated that it is easier and more effective to begin upon a light ground, as the paper of a photograph, and work in shadows, and not upon a dark ground ("tin plate"), and build up lights.

The photographer whose range of custom has not enabled him to wholly give up the ferrotype, and who is not as often annoyed by the loss of EFFECT in the proof compared with that produced in the model, at the time he makes one of them, had better abandon the business. To escape the tintype, it is a source of gratification that poetry and music are the only fine arts we have assurance of finding in heaven.

Judging by the kind of thunder emanating from 591 Broadway, lightning must have taken a back stroke, and hit the battery. If any one is confident of having a good article, a meritorious article, that he wants to put into market, he has no need of turning himself into a clown, spilling over with personal abuse of honest opponents or rivals for public favors; doubtless Lambert forgets that they have re-christened some foreign traps they have brought to this country from abroad.

Evidently Lambert is smart as lightning, but too cockneyed to know that "trotters" are driven, not rode. I will venture the prediction that in less than twelve months Messrs. Notman & Co. will be working by their old, well-tried, reliable formulæ, as well as though they had not been struck by lightning; and while I would not say a word discreditable to the justly distinguished Canadian, I am much deceived if there was not twice as much work done by the Centennial Photographic Company during the last six weeks of the Exhibition, and just as good and artistic work, as in any six weeks under Notman's management by proxy. Neither can a man whose richest, rare gift is of making money out of poor photographers by peddling other men's ideas, harm the scientist and scholar, Vogel; honored by men of ideas the world over, and abundantly by his own enlightened government, the 591

battery will need a multitude of relays, and of better power than the Broadway elements afford, to accomplish the feat. the L. N. P. materials are all that Lambert claims for them, why not predicate the sale of the right to buy them of Anthonys' upon the satisfaction given by a trial lot? There could be no danger, if they are really so cunningly compounded as to defy analysis. As to investing in territorial exclusive rights to pay two prices for chemicals to Mr. Anthony, I have only to say that no chemical process ever invented, or that ever will be, can ever make or unmake an artist; and if my competitors be better artists, they can do better work and get the patronage due excellence, otherwise I can hold it in defiance of all the lightning ever turned out of 591 Broadway.

Another thing: patents secure rights I am bound to respect, because I have availed myself of their protection, and in that they have not shirked the office fees in gaining a right to protection; and any patented materials Mr. Anthony is licensed to sell, must be sold as the patentee directs, and that is right and honorable; but if Anthony is to discriminate between customers on non-protected articles, I can instruct parties I buy of not to send me any of Anthony's goods. I expect to pay for being bled, but I want the doctor to have his diploma.

The difference between the honorable doctor and nefarious quack, lies much in the fact that the doctor gives the formula of his prescription, the quack don't do any such thing; that would expose the humbug in it. That Lambert writes his tirades against Wilson for the especial edification of the non-readers of the Philadelphia Photographer, is apparent from the foolish misrepresentation of the process as published in the June number, and which Lambert is forced to admit, is all the information he imparts in return for twenty dollars, and all the benefits, except the privilege of buying the secret chemicals of Anthony. I do not believe any intelligent reader could misunderstand the true purport of the article in this magazine, viz., that it contained all the information that Lambert gave in exchange for twenty dollars. I see he now publishes the process of manipulation free; so much "thrown up," sure; and if the secret chemicals be like the manipulation, there is literally nothing new about the thing, except the novelty of paying at the rate of four dollars per pound above market rates for silver, and probably at the same rate for the whole batch of nostrums. Let any right-minded man read the July number of the Philadelphia Photographer, and contrast it with any number of the Bulletin for two years past, and see who is guilty of "clownishness," "harlequinades," and "scissors." If silence is the price of immunity from vituperation, slander, personal abuse, and defamatory attacks from foreign or domestic blackguards, who have secrets and nostrums to hawk about, I rejoice that there is at least one, who for the good of the many, dares to sound the alarm. And while I admire the cool contempt with which the editor of the Philadelphia Photographer has met this flood of abuse from 591 Broadway, I think his friends, Vogel, Webster, or even the humble writer, are excusable for the little they may say in his defense. If Vogel believes the lightning process to be a humbug, he certainly has a queer way of taking revenge against a class no living foreigner has done so much to benefit, when he takes the pains to say a word of caution that can only benefit us.

How absurd that there should be aught between Vogel and the photographers of America, except admiration profound for him, respect and love for us; it is more than absurd; it is the creature of a disordered imagination, the product of an exotic intellect rooted in generous soil.

Since the above was written, I have received Lambert's circular, offering his lightning process on trial, with six months' "purchasing credit" at Anthonys', together with a few shillings worth of chemicals, for the modest sum of ten dollars. I presume the majority of the photographers of the country have got one like it, and doubtless some have parted with their cash. Not I; the poor do escape some temptations.

No! Mr. Lambert. Send me a trial lot of L. N. P. chemicals at their *real* commercial value, and no "permit" nonsense, and I will try them, and pay for them—when I want them.

I will add, in conclusion, that I am sheltered by two good lightning rods (on my house and gallery), and do not propose to contribute to a foreign purse the means of defaming the character and good purpose of my friend and countryman.

(To be continued.)

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#### ANOTHER TRIUMPH.

WE have received the following good

OFFICE OF WILLIAMS & HARLAN,
Attorneys and Solicitors, Powers' Block, Pearl St.
GRAND RAFIDS, MICH., Sept. 9th, 1878.

DEAR SIR: I have the pleasure of sending you inclosed information of the defeat of Wing's last effort to save his bogus patent. Let us rejoice.

Very truly yours, J. H. Tompkins.

To Mr. E. L. Wilson, Editor Philadelphia Photographer.

#### THE DECISION.

WING ET AL. vs. TOMPKINS.

May Term U. S. Court, A. D. 1873, Wednesday, Sept. 4th.

The court met pursuant to adjournment. Present, the Hon. John Baxter, circuit judge.

. Simon Wing, Alb. S. Southworth, and Marcus Ormsbee, Complainants,

vs.

Joseph H. Tompkins, Defendant.

This cause came on to be heard, on petition to open decree heretofore rendered herein, and after hearing the arguments of counsel,

ORDERED, That said petition be, and the same is hereby dismissed, with costs.

JOHN BAXTER, Judge.

To the Photographers of the United States, again greeting:

The above is a copy of the official record just entered in the above entitled cause, wherein a decree had been previously entered, declaring the Wing-Southworth patent for a sliding plate-holder void.

The above motion, in effect for a new trial, was made after said decree, and over two years ago, when it was fully argued before the honorable district judge, with formal de-

cision reserved until above result, including costs, against complainants.

Fraternally yours, J. H. Tompkins.

We congratulate Mr. Tompkins, and the fraternity at large, on this happy event.

#### OUR PICTURE.

STILL another variety of photographic production is presented to our readers this month for their study—a composition or "genre" picture, from the studio of Mr. Leon Van Loo, Cincinnati, Ohio.

Mr. Van Loo long ago entered the ranks of that class of photographers, who, more far-seeing and more ambitious than the generality of their fraternity, and believing that the ability of photography to produce works of art had not yet been developed, took it upon themselves to work out more brilliant results, embodying the artistic and the picturesque, than had been done by their predecessors.

He has also met the success which he anticipated, both artistically and financially; and among the numerous directions in which it is possible to produce artistic photographic pictures, he has chosen the style which is represented by our picture, namely, the production of groups of the "genre" style. Our readers have before had several of this style of picture brought to their notice and possession already, and are familiar with the method of their production, which briefly is as follows:

The group is first sketched by the artist, on a sheet, roughly, so as to give the clue to the photographer, who now makes the individual pictures of the parties in the group, posed to comply with the arrangement in the sketch. Prints from the negatives are then made, cut and pasted upon a sheet upon which has, or has not, already been drawn the design of the apartment and the accessories, and then with a few finishing touches from the pencil, it is ready to copy into large or small size.

The result of such an effect is before you, and it is one of the best we have seen for a long time.

The original picture was a long time ex-

hibited in Cincinnati, and attracted a great deal of attention. In order to inform the public as to its production, Mr. Van Loo issued a little leaflet which contains a good deal of information directly bearing upon the subject, and we extract from it, viz.:

TO THE PATRONS OF PHOTOGRAPHIC ART.

"When Daguerre, in 1839, gave to the world his wonderful invention of making fixed impressions, with light, upon a sensitized silver plate, the process was exceedingly simple; and after occupying the attention of scientists for a short period, it fell into the hands of mechanics, and these of no high order of intelligence. The picture business, as it is still called by some, was practiced purely from a mechanical standpoint, and through its many and varied improvements, from the daguerreotype (on silver plate) to the ambrotype (impression on glass), the melainotype or ferrotype (impressions on iron), and the photograph (name generally applied to impressions on paper), it made but slow progress towards asserting its claims as an art. In 1863 photographic portraiture was little, if any further, advanced in Europe than in America.

"Among the pioneer artists pre-eminent stands Adam Salomon, of Paris, a sculptor of eminence, who in 1864 established a photograph atelier in the French capital; and his portraits attracted at once general public attention, by their masterly treatment in posing, and lighting, and general artistic excellence. Salomon was not without co-Fritz Luckhardt, of Vienna, laborers. Petsch, of Berlin, Notman, of Montreal, Shemboche, of Rome, and Kurtz and Sarony, of New York, are men whose talents, illustrated by the camera, have obtained for photography an honorable recognition among the fine arts.

"Receiving ample public encouragement, the progress made during the past ten years is marvellous. 1867 saw the dawn of 'genre studies,' and this city was among the first to lead in this progressive work. 'Wash Day,' group of Chas. Woolley's, Esq., three children attracted general attention; it was soon followed by 'Soap Bubbles,' group of Aug. Wessel's children; then the 'Street Scenes,' or 'The Newsboys at Work,'

'Mamie at the Well,' the daughter of John R. Wright, Esq., the Katzenberger family group of eight figures. These compositions opened the way to larger and more difficult undertakings, and the 'Phœnix Group,' of two hundred and nine figures, was completed October, 1877. This in time is now followed by a still more ambitious composition, 'An Evening at Home,' a group 29 x 41 inches, composed of eleven figures, the family of Wm. Resor, Esq., of Clifton. This work is of a higher order of artistic excellence than has yet been attempted in photographic portraiture; each figure is not only a graceful portrait, but is made to take its part in the illustration of the subject.

"The father comfortably seated is enjoying his fireside, perusing his daily paper; the mother, and baby at her side, are intently listening to the music of Miss Mary Belle and Master Robert-the duet is an old favorite melody, and the musicians knowing it by heart are playing from memory; Miss Sallie is seemingly engaged looking through the stereoscope, but the music has claimed her attention, and unconsciously charmed by its melody, she forgets all else before her; Masters Will and Clifford, with their blocks, out of respect to the performers, have temporarily suspended operations, while the mischievous little Bessie is unsuccessfully trying to attract Baby's attention by the sly use of the jumping-jack. The portraits on the wall are those of the grandparents, the late Wm. Resor and the present Mrs. Wm. Resor, of Clifton.

"The many difficulties encountered in such a work are apparent, when taking into consideration that each subject, in form and even facial expression, must be so arranged as to completely act the part assigned to it in the group.

"How well the subject of 'An Evening at Home' has been treated, I leave for others to say. Yours truly,

"Leon Van Loo."

When the negatives were sent us, we had a curious experience in printing test prints, and appealing to Mr. Van Loo for negatives of a different nature, to suit our printer's method of working, we received the following interesting note, which is full of useful hints.

"MY DEAR SIR: Yours of the 12th, containing print from cabinet group at hand.

"The print you sent me, and which I inclose with a couple of prints made here, is simply over-printed. You will find that lighter prints from the negatives will be all right.

"My experience in composition groups has taught me to use for such a work, prints at least three shades lighter than are usually used in individual portraits, and from negatives with little or no contrast, made with a great deal of diffused light, actually imitating, as near as possible, the interior atmosphere and still be strong enough to be effective. This leaves you a background that is light, atmospheric, and with a much better perspective than can be obtained when strong photographs are used as portraits, which call for dark, heavy, hard backgrounds, to get the proper relief to the figures.

"The original Resor group I think a great artistic success, and I hope some day you may see it. The photographs were all toned to a gray black, and with the backand foreground finished in the same key and tone. The effect is very luminous; much like that which is so peculiar in the 'genre' pictures of the present Spanish school; I mean the works of Madrazo, Villéqus, or Fortuny.

"Such a picture does not make very good small copies; small pictures require more contrast to be effective. I send you inclosed two prints, made from some of the negatives sent you; and No. 1, which is the lightest, is, in my opinion, the best. I believe that the greater part of the photographers in this country especially make their negatives and prints too contrasted; shadows too dark, and high-lights too white. No matter how much definition there may be in either, or both, there is such a thing as having too much brilliancy in photographs. As there are no whites or blacks in nature, nature is better imitated in photographs that are not so excruciatingly sharp, and made with ample diffused light, are free from the conventional brilliant clearness, which, in my opinion, means too often much hardness.

"I send you inclosed No. 3, a cabinet of child, which I find in the show-case, it hav-

ing been used here as a specimen; and this picture is my beau ideal of a photographic portrait.

"Of course common sense should be used in applying this diffusion of light and focus to what best suits the subject. This No. 3 negative was made with a Dallmeyer lens, without stop, and the focus put a little forward, so as to give the near eye, nose, and mouth the sharpest.

"When I get back here from Europe, I hope to find time to contribute some to your journal. There are some of the experiences of the past ten years, in the production of artistic work, that might be of benefit to the fraternity. Yours truly,

" LEON VAN LOO,"

Upon receiving this, our method of working was changed to suit Mr. Van Loo's ideas, and our patrons have the results as near as we could approach to what he desired. The prints were made at our own rooms, on Gennert's importation of S. & M. Dresden paper.

### PHOTOGRAPHIC NEWS.

PHOTOGRAPHY under the surface of the earth has become possible, and on several occasions it has been practiced with more or less success. Quite recently it has been used by two amateurs, Messrs. Embrey and Percy Thomas, in a coal mine situated in the west of England. In this mine was found a most interesting geological phenomenon: two stalks of sigillaria, almost vertical, in the vein that was being worked, one of these stalks having a circumference of from eight to nine feet. It was important to obtain a permanent record of this phenomenon by means of photography. time of exposure of a plate lighted by the light of burning magnesium, is very difficult to judge in an experiment of this kind. The operators, however, obtained rather satisfactory negatives by using a dry-plate process, and the developing bath with oxalate of iron, which we have already made known. By the use of this agent, the dry plates are more sensitive than the ordinary wet plates, and there results great economy in the consumption of the magnesium wire. - Dr. PHIPSON in Moniteur.

At the Anthropological Institute, London, recently, Mr. Francis Galton read a paper on composite portraits made by combining those of various persons into a sin-The uses of the process are gle image. to obtain anthropological types, and to compare the average likeness of a family of brothers and sisters with that of their near ancestry. There is nothing very difficult about this ingenious application of photography. Photographs are collected of persons of the same general type of features, and taken in the same attitude. These are reduced photographically to the same size. The pictures are then severally adjusted under fixed cross-wires, so that one wire cuts the pupils of the eyes, and the other bisects the space between them, and two register marks are pricked through the pictures by means of a hinged arm carrying sharp points, which is brought down upon them. The portraits thus prepared are hung, one in front of the other, by the register holes on two pins sticking out of a screen in front of the camera. Lastly, the pictures are successively photographed by removing each at intervals of ten seconds. The composite picture retains what is common to all the components, and eliminates all individual peculiarities. The result is a handsome, beautiful face, a typical piece of portraiture.

Use of Composite Portraits.—"The uses of composite portraits are many. They give us typical pictures of different races of men, if derived from a large number of individuals of those races taken at random. An assurance of the truth of any of our pictorial deductions is to be looked for in their substantial agreement when different batches of components have been dealt with, this being a perfect test of truth in all statistical conclusions. Again, we may select prevalent or strongly-marked types from among the men of the same race, just as I have done with two of the types of criminals by which this memoir is illustrated.

"Another use of this process is to obtain, by photography, a really good likeness of a living person. The inferiority of photographs to the best works of artists, so far as resemblance is concerned, lies in their catching no more than a single expression. If many photographs of a person were taken

at different times, perhaps even years apart, their composite would possess that in which a single photograph is deficient. The analytical tendency of the mind is so strong that, out of any tangle of superimposed outlines, it persists in dwelling preferably on some one of them, singling it out and taking little heed of the rest. On one occasion it will select one outline, on another a different one. Looking at the patterns of the papered walls of our room we see, whenever our fancy is active, all kinds of forms and features; we often catch some strange combination which we are unable to recall on a subsequent occasion, while later still it may suddenly flash full upon us. A composite portrait would have much of this varied suggestiveness.

"A further use of the process would be to produce, from many independent portraits of an historical personage, the most probable likeness of him. Contemporaneous statues, medals, and gems, would be very suitable for the purpose, photographs being taken of the same size, and a composite made from them. It will be borne in mind that it is perfectly easy to apportion different "weights" to the different components. Thus, if one statue be judged to be so much more worthy of reliance than another that it ought to receive double consideration in the composite, all that is necessary is to double either the time of its exposure or its illumination." -Mr. Galton at the Anthropological Inst.

THE English papers publish an article on the restoration of deteriorated albumen which has become more or less insoluble. It is said that its primitive qualities may be restored by digesting it at a temperature of one hundred and five degrees Fahr., in water containing two and a half per cent. of hydrochloric acid, and seven and a half parts of fragments of the membrane of the stomach of the calf or sheep, which acts by the pepsin which it contains. After digesting at this temperature for thirty-six hours, the liquid is filtered, and its acid carefully neutralized by the gradual addition of liquid ammonia. The albumen has thus undergone a regeneration, and is found as such in so-It is possible that several animal substances submitted to the same treatment may be gradually transformed into albumen on being dissolved. It might be worth while to make this experiment.—Dr. Phip-

How to make Business go, whichever way you think. A slip, of which the following is as near a fac-simile as possible, was poked into our hand, a few days ago, while passing down the street. It may give a hint to some of our readers how to push business.

### DOWN!

3 FOR 10

Nicely Tinted Card Pictures, or one dozen smaller size FOR 10 CENTS.

Our life-size INDIA CRAYON Photos., Price, \$6.50, are well worth \$30.00.

All sizes down to dots to suit the HARD TIMES.

REMEMBER

### Immense Galleries.

\* \* \* \* \* \* \*

The most extensive, and fitted up expressly for Cheap but First-class picture-making.

These likenesses are perfect gems, Both durable and true, Giving the poor a chance as well As those that's well to do.

CAPT. RICHARD F. BURTON, who left Suez on December 10th, 1877, at the head of an expedition for the exploration of Northern, Southern, and Central Nubia, returned to the place whence he departed on April 20th, 1878, after a most successful tour, covering over 2500 miles. He brought back numerous specimens illustrative of the geological formation of the country, and of its mineral wealth in gold, silver, copper, etc. His ethnological and anthropological collections are rich and valuable, and his sketches and photographs of remains of ancient cities and mines are full of interest. His forthcoming book will be eagerly looked for by students of sacred and profane history, as well as by the mining engineer and those concerned in the prosperity of Egypt.

ZINC bromide, one of the most recently introduced of the haloids now used in the manufacture of collodion, possesses certain properties of its own which render it peculiarly valuable for many purposes in photography; but it is, unfortunately, a comparatively expensive salt, and its manufacture, especially to the amateur chemist, is beset by so many difficulties that it scarcely secures the amount of recognition due to it. We have to record a simple method by which it may be prepared in a state of sufficient purity for photographic use without the expenditure of any serious amount of trouble, and in the absence of any special manipulatory skill. The method is based upon the fact that cadmium is precipitated from solutions of its salts by contact with metallic zinc. All that is necessary is to make a concentrated alcoholic solution of the comparatively common and inexpensive bromide of cadmium, and to throw into it a few pieces of granulated zinc, leaving the solution in contact with the zinc for a day or two, with an occasional shaking to dislodge the precipitated cadmium which clings in the state of fine powder to the surface of the zinc. When the action is judged to be complete, the alcoholic solution of zinc bromide is filtered, in order to remove the minute particles of metallic cadmium, and may then be used without any further treatment in the preparation of the collodion. It will, of course, be necessary to form an estimate of the strength of the solution, which may be effected by actually testing a measured quantity, or, better still, a known quantity of the cadmium salt may be operated upon at first. Thus, if we dissolve two hundred and fifty-six grains of anhydrous bromide of cadmium in one ounce of alcohol (or, rather, if the bulk be made up to one ounce after the salt is dissolved), each drachm after treatment with zinc, will be equivalent to forty grains of silver nitrate. The results attained in this manner will be found at least as accurate as if the crystallized salt were employed, as the latter always contains, even when freshly prepared, a large proportion of insoluble basic salt, whence it is evident that any calculations based upon the actual weight of material used must, of necessity, be open to some uncertainty.—Brit. Jour.

SUGGESTED TAX ON PHOTOGRAPHS. - I understand that Sir Stafford Northcote has had it suggested to him by a "financial adviser," that if next session he finds it necessary to impose any new taxes, he ought to increase the duty on tobacco, and impose a stamp duty on photographs. This latter tax ought not to be unpopular, and it cannot fail to be remunerative. Nobody will sympathize with the grievance of the "cad" if, when he buys a carte of Mrs. Langtry or Mrs. Cornwallis West, in order that he and his friends may gloat over these fashionable beauties, he is mulcted for the benefit of the State. A tax on photographs is, to a large extent, a tax on vanity and "snobbery," and for fiscal purposes, these foibles are surely fair "game."—Mayfair.

The forty-eighth annual meeting of the British Association was held in Dublin this year, and, as usual, turned out to be a pleasant reunion of scientists abroad. We regret to see, however, that each year photography seems to be given less and less attention. Are all our friends becoming artists, and forgetting that we have a reputation to uphold among scientists as well?

THEY are trying to revive glass stereoscopic pictures in England. Nothing in photography is more beautiful than such pictures.

DISCOVERY IN PHOTOGRAPHY.—The Indianapolis News says: "Mr. W. E. Schneider, an observer in the weather bureau of this city, and an ingenious inventor, has made an interesting experiment in photography. He takes a negative from a positive by gaslight, and without the aid of a camera. A photograph of the ordinary size is dampened, and the picture detached from its mountings. This is then transferred to an ordinary glass plate, and chemicals applied to make it perfectly transparent. A plate of glass is made particularly sensitive by the application of chemicals. The two plates are then placed together, and with an ordinary hand looking-glass as a reflector, and a jet of gas as a light, the negative is taken. From this negative pictures may be printed as easily as with the first negative."

"ART education for photographers."—Photographers, give attention to this subject. We shall have some suggestions concerning it shortly.

The Washington Star says that three Englishmen, who called to pay their respects to President Hayes, last week, had their cards embellished with photographs of themselves. The photographs, which are of the head only, are placed in the upper right-hand corner, and are supposed to be the new British wrinkle in the way of visiting cards for gentlemen. [Old here.—Ed. P. P.]

### Editor's Table.

PICTURES RECEIVED.—From Mr. W. F. VAN Loo, of Toledo, Ohio, some very tasteful specimens of photography. It is pleasing to see such good work from a young photographer who has not yet been "years in the business."

Mr. Harry Sutter, of Milwaukee, Wis., sends some graceful compositions with out-door effects. As specimens of printing they are very fine, and some of the negatives of excellent quality. These photographs, in a measure, show the use of his "new background-holder," which will be fully described, with an illustrated article, in our next issue.

Mr. Isa Black, of Franklin, Pa., has sent us some very fine cabinets, with rustic accessories.

These pictures are thoroughly good in every respect, lighting, posing, chemical effect, and printing. Mr. Black says, in his letter on sending these specimens: "I send herewith some of my work, which I do not say is not as good as I can do, but rather it is the best I can do now, and I hope to do better." This is certainly an admission we do not often receive; but, as Mr. Weller would say, "on the contrary, quite the rewerse." In this same collection we notice a group after Rahael's Cherubs, of Mr. Black's little twin daughters, Gussie and Gracie, aged sixteen months each, or thirty-two months, taking the pair of cherubs as a whole. Time, one second, made without head-rests. They thought three

seconds quite too long a time to sit still, and Mr. B. thought they were moving all the time. This picture was made with his quick-working process, which we may give in our next number.

We have received from Mr. M. L. DAGGETT, of Taunton, Mass., some very beautiful photographs of glass and silverware. These are, without comparison, the most exquisite photographic effects we have lately seen. Clear, sharp, and well defined, and yet so soft and beautifully modulated, that there is not the smallest trace of harshness. Could such effects be produced in portraiture, retouching the negative would become a thing of the past. We quote from Mr. DAGGETT's letter: "They are in illustration of my belief in the copper developer I advocated among your issue of recipes, more especially the one by itself. It shows the two subjects of glassware and the dead-white marble-like surface of the silver in close juxtaposition, both illuminated by one of the hardest lights to work, viz., an intense side-light alone."

Mr. C. W. Hearn sends us some beautiful specimens of his truly artistic printing, vignetted and flashed. In another part of the journal Mr. Hearn alludes to these pictures in his article on Waymouth Vignette Papers.

We have also alluded to them there, but they seemed worthy of a further notice. Mr. HEARN has done more towards developing the art of printing and raising the position of the printer than any other man in photography. Whereas this branch used to be looked upon as one of the most unimportant parts of the work, suitable for intrusting to the boy, or the latest beginner in the gallery, it has now become little less than equal to negative making. Care, taste, and some chemical knowledge, as well as some idea of the rules of drawing, are now necessary to enable a man to succeed in artistic printing. A bad negative can be much improved, even rendered quite passable, by careful and judicious printing; and, on the other hand, the beauties of a good negative can be utterly obliterated and a very secondrate effect produced by an ignorant printer. By his unremitting labors in developing this branch of the trade, Mr. HEARN has aroused the attention of the fraternity, and we are glad to see his efforts crowned with success, as shown in the improvement in photographic printing generally.

Mr. Joseph A. Maggini, who has been with Peter Smith and P. Smith & Co. for over thirty years, left their service at the end of August last, and has made an engagement with Messrs. Gatchel & Hyatt, Cincinnati, Ohio, and will be found at their store. He has been in the busi-

ness, with two or three exceptions, the longest of any one now engaged in it. He has many friends among our subscribers, and it will please them to hear of his new engagement. No doubt they will flock around him in numbers.

THE Art Interchange, the first issue of which has reached us, is a household journal, published under the auspices of the Society of Decorative Art, and seeks to diffuse a better knowledge of industrial and decorative art.

The paper consists of eight pages, the size of The Nation, and is issued every other Wednesday from September 18th. It contains matter valuable both to art workers and all who are interested in the continually increasing devices for adding to the attractiveness of homes.

To insure versatility, the features of an art and household journal have been combined, so that in addition to the various departments of instruction and criticism, current topics of interest receive suitable attention.

Terms, free of postage, \$1.25 per annum, invariably in advance. A sample copy will be sent on application. Address, *The Art Interchange*, 34 East Nineteenth Street, New York.

NEW PHOTOGRAPHY FOR AMATEURS, is the title of a little work by MAX FRITZ, issued in German by ROMAIN TALBOT, Berlin, Prussia. It is a model of compactness, as is indeed the plan it advocates for making photographs in the field.

ITEMS OF NEWS.—Mr. T. H. HIGGINS, Wheeling, W. Va., sends us a local paper with a fine description of bis new operating-room just now about finished. From this account Mr. HIGGINS seems to be prosperous. He makes the "Panel" picture one of his specialties.

Mr. Charles Orr, Sandwich, Ill., is making a fine display at the county fair. He appears to be one of the enterprising ones.

Mrs. E. N. Lockwood, Ripon, Wis., has been "captain" of her husband's "steam camera" for some weeks, during Mr. Lockwood's absence, "with great success." Like her husband, she is a good photographer, and able to take any part of the work. Deserving enterprise. The "steam camera," we must explain, is a steamboat with a photograph gallery aboard.

Mr. Albert Levy's new advertisement of his Emulsion, materials, etc., should be read by *all* this month.

Mr. L. W. Seavey's new page advertisement should also be carefully read by the enterprising ones. Do not let us allow him to get ahead of us, if he has been to Europe.

It is reported that medals were awarded at the Paris Exposition to Messrs. Bigelow, Sarony, Gutekunst, Smith, Landy, and the Centennial Photographic Co. We hope for a confirmation of this, and a full list for our next issue.

Hearn's Practical Printer, Second Edition, is in the hands of the binder, and will be ready in a few days. It will be a great improvement on the first edition, and contain a fine panel picture from negatives made for the purpose by G. M. Elton, Palmyra, N. Y., elegantly printed. Mr. Hearn has done his best. An extract from his work, one of the new chapters, will be found on our first page, and a list of the contents in the advertisement. We shall take occasion to review the work more fully in our next. Already several hundred copies of it are sold, and we are ready to receive more orders. No live, enterprising photographer should be without this work. \$2.50, post-paid.

Mr. Henderson's quick process is further commented upon this month by Prof. Stebeng, and we think our readers should give it earnest attention and careful experiment.

LIGHTNING.—Our friends are a little less "quick" than we would like in upholding us in this storm, but they are rallying, and next month we are promised another "quick" process entire, and another analysis from a source that will raise the ire of "the defense," or a black cloud at least.

And now that the number of "licensees" still hangs at 142, after all this effort, Mr. LAMBERT is forced to throw up still more, and offers the permits, with chemicals to work the process, for \$10. What a change from \$50. But then he is going into the "annuity" business. Look out! Gradually the thing comes up.

OBITUARY.—Our readers, one and all, will doubtless be grieved to hear of the death of our esteemed correspondent, Mr. John L. Gihon. As announced only in our last issue, Mr. Gihon has for some time been photographing in the gold region of Venezuela. He had started home, it appears, and as we are informed by Captain McCready, of the schooner "Anita," died on September 16th, on board that vessel, of general debility, and was buried at sea.

He leaves a wife and three tiny children in this city, to whom he was returning, to mourn his loss, helpless and alone.

This sad news comes to us just as we are closing

for press, and is a great shock to his many friends in this city and elsewhere.

In our next issue we shall give a sketch of his photographic career, which has been a most interesting and useful one, believing that every one will be glad to have it on record. Photography has surely lost one of its most useful and talented advocates in his death.

WE have just received a most urgent appeal for help from Mr. F. C. Hall, photographer, Port Gibson, Miss. His family of five children have all been sick with yellow fever, and are now recovering. He says all his means are exhausted and he is now in debt. The fever is still raging, and no present prospect of business being resumed.

Any assistance from the fraternity will be thankfully received by him. Send it directly to him, and he asks that the full address of the donor may be given, and if prosperity once more dawns upon him, he will most gladly repay the debt. During the great suffering after the Chicago fire, Mr. Hall was prompt in responding to the call for help.

Mr. G. M. Elton, Palmyra, N. Y., sends us some specimens of his beautiful Panel photographs. It will be remembered that Mr. Elton took the \$100 Gold Medal Prize offered by us last winter. It was awarded to him on this same style of picture; and now he tells us that he has just received the prize offered by Mr. Richard Walzl, Baltimore, on the 16th inst.

Mr. Walzl could not do better than in yielding the palm to Mr. Elton's fascinating pictures, and thus following the lead of our own jury in awarding to him our more extended prize last winter. These pictures, are, of course, exquisite, but in no way superior to those on which he last winter received the prize. The lighting is artistic, posing graceful, accessories well chosen, and chemical effects in both negatives and prints have been skilfully manipulated; in fact, care and judgment in every part of the work have succeeded in producing most beautiful photographs.

Mosaics, 1879, is in preparation, and we hereby cordially invite all of our readers and contributors to send us something for its pages, confining themselves to the practical and useful. Those who are high up the ladder should remember that they can give a good deal of help to others in this way, and we hope they will assist us in forming an unusually good Mosaics for the new year. Please send your contributions now.

### Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

BURNISHER FOR SALE.—30 inch. A splendid machine; Entrekin's make, and for use as good as new. The only one ever made. Guaranteed to work perfectly. It can be seen and tried if desired. For terms, apply to "G,"

Care Philadelphia Photographer,
Philadelphia.

### Hance's Photographic Specialties. See Advertisement.

For Sale.—An old established and first-class gallery, with or without instruments, for cash only. Satisfactory reasons for selling. Also, only gallery in a town of 5000 inhabitants; no opposition; built expressly for the business.

Address I. R. B., care P. Smith & Co., 56 W. Fourth St., Cincinnati, Ohio.

# Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

For Sale.—A photograph gallery located in the town of Smyrna, Del. Population of town and circuit, 6000. Established twenty years. Must be sold at once; with or without instruments; on very easy terms. Owner in Calfornia. Apply or address W. G. Holding,

P. O. Box 83, Smyrna, Del.

Wanted to Purchase, a first-class Photograph Car for eash. Persons having one to dispose of will give full dimensions of size, height, weight, age, price, size of skylight, etc., with two different views of same, and stamp for return. Also a 4-4 Camera, and a small Burnisher.

Address E. Dunham,

West Rutland, Vermont.

Waymouth's Vignette Papers.

### TO THE PHOTOGRAPHERS OF THE WEST AND SOUTH.

I respectfully announce to my numerous friends and the Photographic community in general, that I have ceased my connection with P. Smith & Co., and have made an engagement with Messrs. Gatchel & Hyatt, No. 108 West Fifth St., this city.

Having had near thirty years' experience (in one house) in every branch of the Art, from the introduction of the Daguerreotype in Cincinnati, I have a thorough knowledge of the wants of the Photographic Artists of the present day, and will endeavor to give entire satisfaction to all engaged in the profession.

I shall be pleased to have my Photographic friends call upon me, and solicit a share of patronage from all Artists throughout the West and South.

JOSEPH A. MAGGINI.

Formerly with
PETER SMITH,
P. SMITH & CO.
Cincinnati, September, 1878.

# Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

Wanted.—A lady to work in ink, crayon, and water colors, in one of the leading galleries in Boston. None but first-class artists need apply.

Address Photographer,

493 Washington St., Boston, Mass.

HALL'S Transparent Crystal, Granite and Negative VARNISHES. Sold by all Dealers.

2

#### THE WONDERFUL EURYSCOPE.

PHILADELPHIA, Sept. 3d, 1878.

Messrs. Benj. French & Co.:

Gents.—The Euryscope Lenses sent us for trial we consider to be a whole team in themselves; in fact we think it would be possible to run a gallery with only the Euryscope to work with, and do outside as well as in-door work, with the very best results. For our particular branch of business, we consider them the greatest lenses we have got hold of so far. For quick working and light, we consider them Ne plus ultra; in fact we cannot say enough. We are satisfied that a trial will insure their sale wherever they are introduced.

R. NEWELL & SON.

Wanted.—A first-class operator in one of the best appointed galleries in New England; no second-rate man need apply. Send sample of work. Address G. C. W.,

Box 172, Providence, R. I.

Partner Wanted.—Experienced operator of good habits, who can make good and artistic negatives; one who would be inclined to engage (in a small way) with one (unmarried) fifteen years in the photograph business. With such, a correspondence is desired. Send photograph of self, and address

J. B. B., Photographer,

Morris, Ill.

### Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

Wanted.—Situation as operator, or to take charge of a business, by a man who has been many years a photographer, and had good experience. First-class reference can be given.

Address B. C.,

Office Philadelphia Photographer.

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Z 2½, care Philadelphia Photographer, 116 N. Seventh St., Philadelphia. CHEAP! CHEAP!!

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ONE ZENTMAYER'S ELEGANT "GRAND AMERICAN BINOCULAR," fitted with objectives 1-10th to 2 inches, all of Zentmayer's accessories, case of mounting material and instruments; two cabinets of assorted foreign and American objects; Moller's Diatom Test-plate, etc., embracing a perfect outfit for a student or professional Microscopist. Cost over \$800. Address

W. J. LAND, P. O. Box 305, Atlanta, Ga.

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ALBERT LEVY, 77 University Place,

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Having been trying for the past two or three years to find Dry Plates which were sensitive and reliable, I am well pleased to be able at the present time to get any of my amateur photographic friends out of the fog, and show them the means of obtaining Dry Plates which work well and reliable in all places and weather, and require no art or eleverness to produce good, clear negatives, vigorous and brilliant prints.

I purchased of Mr. Albert Levy one dozen of his Dry Plates on trial, and the result so far exceeded my expectations that I really began to think that I was a photographer, forgetting it was the plates and not the man. I have long ago discontinued using bath plates, and all other plates or emulsion except his, and have invariably found them to work the same.

Yours, etc., H. W. WICKHAM, 384 and 386 Broadway, N. Y.

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Portland, Maine.

#### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

By a young man who has had limited experience in photography and wishes to advance his knowledge of the art by engaging with some first-class man for one or two years. Can furnish good references as to character, sobriety, etc. Address Jas. A. Brooks, Adrian, Mich.

A position by a young man thoroughly competent in all branches of phetography. The East preferred. Address A. McWilliams, care Dispatch office, Pittsburg, Pa.

By a first-class negative retoucher and competent assistant in the other branches of the business. Reasonable salary. Address A. C. H., Cooperstown, Otsego Co., N. Y.

In or near Boston; prefers general work; will do anything; not afraid of work. Might take an interest. Address Box 25, Swampscott, Mass.

A young lady would be obliged for an opportunity to take charge of a reception-room, pencil, color, mount, etc. Address Box 357, Brockton, Mass.

A permanent situation as retoucher; should like to assist in operating; can show samples of work and bring recommendation of former employer. Those meaning business please address to Philip J. Hummel, Hastings, Dakota Co., Minn.

A photographer with many years experience and good reference, wishes a situation as operator, printer and toner, etc. Address *Photo.*, 530 Sylvester Street, Philadelphia.

By a first-class printer and toner; has had nine years' experience. Address Photo. Printer, Box 204, Emaus, Lehigh Co., Pa.

As operator or retoucher, understands printing and toning. Good recommendation given by present employer. Address Will. J. Hunter, Millersburg, Holmes Co., Ohio.

By a young lady of several years' experience, a situation as photo retoucher in some first-class gallery. Address Lock Box 25, Marlboro, Mass.

By a first-class printer and toner, general assistant; age, 24 years. References, Notman, Montreal and Boston. Address G. F. A., P. O. Box 192, Brockton, Mass.

By a young man who is a first-class printer and toner. Can make himself generally useful in a gallery. Reference, present employer. Address Henry W. Cross, 148 William Street, N. Y.

By a young man of four years' experience as operator or printer. Address N. B. Larkin, Clarksville, Tenn.

By one who understands all the branches of photography; also India-ink work, crayon, water color, or oil. Eighteen years' experience. Has run several very good galleries for others. Address E. G. M., 27 Whitesborough St., Utica, N. Y.

By a first-class printer, either in copying or custom, prefer copying; can give first-class reference; worked in the oldest copying house in the United States. Address J. G. Wise, Tyrone City, Pa.

As printer and general assistant, by a young man of five years' experience. Address D. F. Barry, Columbus, Wis.

By a photographer of twenty-five years' experience, capable of taking charge of any department in a gallery, or the entire charge of a gallery. Experienced in solar work, and a good retoucher. Reference given. Address E. L. Mowry, Milton, Northumberland Co., Pa.

By a photographer of ten years' practical experience; is through in all branches. Reference kindly permitted to Mr. J. C. Steiman, photographer, 504 S. Second Street, Philadelphia. Address K., 150 N. Fifth Street, Philadelphia.

By a young man of first-class experience, as operator and general workman; can retouch nicely. Will furnish specimens and references from former employer. Can also do stereoscopic operating. Address H. S. Keller, Little Falls, Herkimer Co., N. Y.

As artist for crayon, negatives, India-ink, water, and oil colors. Salary, \$20. Address J. Schlickeisen, 378 New York Avenue, Jersey City, N. J.

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### SECOND EDITION,

### Is a Complete Manual of Photographic Printing on Plain and Albumen Paper, and on Porcelain.

At one time too little attention was given to Photographic Printing, although

it is indeed quite as important a branch of the art as negative making.

The author and publisher feel that they have created a REFORM in this matter, by the issue of this work, and thus put money in the pockets of all who read it. There are some who still want it and we shall meet the demand.

#### CONTENTS.

The Printing-room. The Silvering- and Toning-room. The Drying-room. The Positive Bath for Albumen Paper.

Silvering the Albumen Paper. Drying the Paper. Fuming the Paper. Preservation of Sensitive Albumenized Paper; Washed Sen-

sitive Paper.

Cutting the Paper. The Printing-boards. Keeping Tally. Vignette Printing-blocks,

Treatment of Negatives before Finishing the Prints. Printing. Filling of the Boards.

Negatives for Printing.
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Vignette Cameo and Medallion Vignette Cameo Printing.

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Printing--Treatment of Broken Negatives.

Cutting the Prints. Washing the Prints. Acidifying the Prints. Toning Baths. Artistic Toning.

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Drying, Fuming, and Cutting the Paper. [Printing. Treatment of the Negatives before Varnishing the Porcelains.
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General Plain Paper Printing. Waymouth's Vignette Papers.

Printing the Bendann Back- Further Treatment of the Prints after Printing.

Printing Intense Negatives.
Printing Weak Negatives.
A Few More Remarks about Selection of the Porcelain Plates.

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Making the Porcelain Collodion. Coating, Fuming, and Drying the Plates.

Porcelain Printing-boards. Fixing Baths and Fixing Prints. Placing the Sensitive Plate on the Board for Printing.

Printing Vignette Porcelains. Printing Medallion Porcelains.

Fixing the Porcelains. Final Washing of the Porcelains. Drying and Tinting the Porcelains

Printing.

### The whole work has been largely REVISED and IMPROVED and brought up to the requirements of the day.

#### TESTIMONIALS.

"I consider it the best work on printing and toning that has been published, or at least that has come into my hands, and until I see a better one I shall give it the first place. If any one wishes to be helped out of the mud let him read it; but if to be helped out of the mudlet nim readit; but it he wants to stick there let him keep his money in his pocket, and stick till doomsday if he likes."— John R. Clemons, Philadelphia.

The Photographic News says: "Silver printing and everything connected therewith are treated most exhaustively, and the work is evidently that

of a practical man. Mr. Hearn manifestly thoroughly understands his work, and is, moreover, a clear and vigorous writer."

The British Journal of Photography, says: "It is a considerable period since we rose from the perusal of a new book on photography with feelings of greater satisfaction than in the present instance: 'The Practical Printer' is well 'got up,' and the work cannot fail of being acceptable and useful to all classes of photographers, the veteran as well as the tyro in our art-science."

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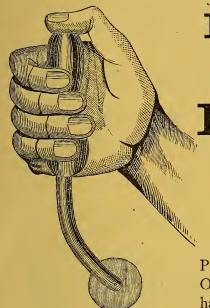
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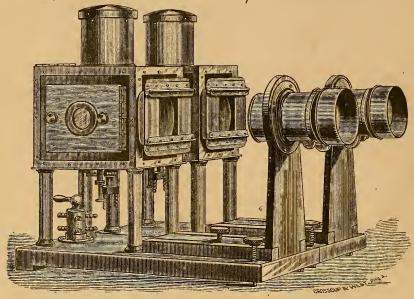
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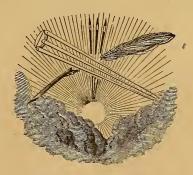
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"I am pleased to inform you that the gallon of Ground-Glass Substitute came safely and is just what I wanted. The surface for retouching which it gives is superb. I shall want more of the same sort when this supply is exhausted."—W. G. C. Kimball, Concord, N. H.

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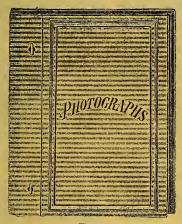
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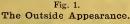
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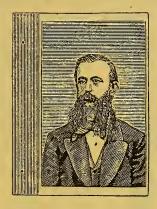


Fig. 2. A Leaf Showing the Guard.

Frequent inquiries for something at a much lower price than an album, for the holding together and preservation of photographs, has induced us to manufacture an article which we think will meet the want.

# IT SERVES ALL THE PURPOSES OF AN ALBUM, FOR

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MAY BE NEATLY AND CHEAPLY BOUND IN THESE COVERS.

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ph.							Per dozen.							Per hundred.
e,							\$1.50							\$10.00
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cov	ER	s.												
							4.50							. 33.00
							6.00							. 40.00
							8.00							. 56.50
							9.00							. 65.00
	e, Siz	e, . Size, COVER	e, Size,	e,	e,	e,	e,	e, \$1.50 Size, 2.25 COVERS. 4.50 6.00 8.00	e, \$1.50 Size, 2.25 COVERS. 4.50 6.00 8.00	e, \$1.50 Size, 2.25 2.25 2.0 4.50 6.00 8.00	e, \$1.50 Size, 2.25 COVERS. 	e, \$1.50	e, \$1.50	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

Larger or special sizes made to order. Furnished with card board at best rates. Samples mailed at dozen price. Send for some.

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116 N. Seventh Street, Philadelphia.

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Is a Substitute for a Knife for Trimming Photographs, and does the work much more expeditiously and elegantly than a knife.

## IT SAVES TIME, SAVES PRINTS, AND SAVES MONEY.

It does not cut, but pinches off the waste paper, and leaves the print with a neatly beveled edge which facilitates the adherence of the print to the mount. Try one, and you will discard the knife and punch at once. For ovals and rounded corners it is worth its weight in gold.

# A Trimmer Mailed for \$3.50, with Ten inches of Robinson's Improved Guides.

The difficulty of procuring exactly true guides for cutting out prints has induced the inventor to put up machinery for the production of all styles of them, guaranteed mathematically true.

Oil the wheel bearings with Sewing Machine Oil.

We have the following regular sizes always on hand at 10 cents per inch the longest way of the aperture.

Special sizes made to order at 15 cents per inch the longest way of the aperture.



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$2\frac{1}{8} \times 3\frac{1}{8}$	$3\frac{5}{8} \times 5\frac{1}{8}$	6 x 8	$2\frac{1}{8} \times 3\frac{3}{4}$	$2\frac{3}{4} \times 4\frac{1}{4}$	$4 \times 5\frac{5}{8}$
$2\frac{1}{8} \times 3\frac{1}{4}$	$4 \times 5\frac{3}{8}$	$6\frac{1}{4} \times 8\frac{1}{4}$	$2\frac{1}{8} \times 3\frac{1}{8}$	$2rac{3}{4}  imes 4rac{1}{2}$	$4\frac{1}{8} \times 5\frac{7}{8}$
$2\frac{3}{8}$ x $3\frac{3}{8}$	$4\frac{3}{8} \times 6\frac{3}{8}$	$6\frac{1}{2} \times 8\frac{1}{2}$	$2\frac{5}{16} \times 3\frac{15}{16}$	$2\frac{7}{8} \times 4\frac{5}{8}$	$3\frac{7}{8} \times 6$
25 x 35	5 x 7	7 x 9	$2\frac{5}{16} \times 3\frac{3}{4}$		$4 \times 6\frac{1}{8}$
0 0			FOR	STEREOGRAP	HS.
$2\frac{7}{8} \times 4\frac{1}{4}$	$5_4^1 \times 7_4^1$	$7\frac{1}{4} \times 9\frac{1}{4}$	Arch Tops.	Round Cornered.	Round.
$3\frac{3}{8}$ -x $4\frac{3}{8}$	$5\frac{1}{2} \times 7\frac{1}{2}$	$7\frac{1}{2} \times 9\frac{1}{2}$	$3\frac{1}{16} \times 3\frac{3}{4}$	$3\frac{1}{16} \times 3\frac{3}{4}$	3 x 3
$3\frac{3}{8} \times 4\frac{5}{8}$	$5\frac{5}{8} \times 7\frac{5}{8}$	$7\frac{3}{4} \times 9\frac{3}{4}$	3 x 3	3 x 3	

The above sizes suit the Collins Card Mounts, and photographers knowing that they can be always had at the low price of ten cents per inch, would do well to make their sizes accord, as orders can also be filled more quickly. Ten days is required to make special sizes.

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#### READ THE TESTIMONIALS.

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"I consider it the best article for trimming photographs I ever saw."—W. H. Rhoads, Philadelphia. "I would not be without it for the best twenty-

five dollar cutting machine I ever saw."-D.

LOTTROP, Pa.

"The Trimmer comes up to all you claim for it.
I would not be without it."—T. Cummings, Lan-

"Just what I wanted and found it difficult to get."—J. W. Black, Boston.
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"The Robinson Trimmer has proved to us one of the most useful instruments that we have in our

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"I have used Robinson's Photograph Trimmer "I have used Robinson's Photograph Trimmer some time. A lady was asked how she liked her sewing machine, and in reply said 'Well I could get along without it, but when I do I shall not sew any more.' That is me, I can get along without the Trimmer but when I do I shall not trim photographs."—Well G. Singhi, Binghamton, N. J. "The Robinson Trimmer works admirably. Does the work intended with great satisfaction."

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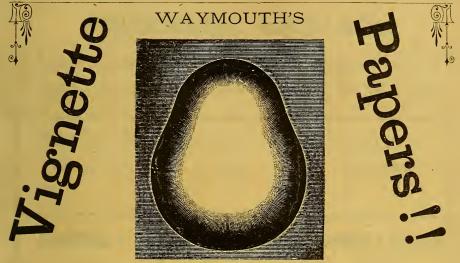
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COOK ELY

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# Philadelphia Photographer.

Vol. XV.

#### NOVEMBER, 1878.

No. 179.

Entered according to Act of Congress, in the year 1878,

BY EDWARD L. WILSON,

In the office of the Librarian of Congress, at Washington, D. C.

#### JOHN LAWRENCE GIHON.

OHN LAWRENCE GIHON was born at Milford, near Hightstown, New Jersey, April 21st, 1839, the curious and noteworthy coincidence obtaining in his case that his father and himself were both born at one o'clock on the morning of Sunday the twenty-first day of April. He was the youngest of three children, one a sister, who died in 1857, and the eldest, a brother, who is now the sole survivor of the family, which returned, soon after John's birth, to Philadelphia, whence they had removed, and where, after a brief residence at Richmond, Virginia, they finally remained.

In the spring of 1855, he was graduated at the head of his class from the Philadelphia Central High School; and his brother, Albert, having that year entered the navy as an assistant surgeon, he was induced to seek the same career, and presented himself at the U.S. Naval Academy, at Annapolis, for examination for admission as acting midshipman by appointment of the Hon. Thomas B. Florence, as the representative of this Congressional District of Pennsylvania, over a list of more than a hundred and fifty competitors. To the surprise of himself and family, he was rejected by a board of surgeons for a trifling varicose condition, of the existence of which both he and they were till then ignorant, but which so little interfered with his physical activity

that he subsequently became one of the most athletic and agile members of the Philadelphia gymnasium, and which his brother, who has for some years been president of the board of medical examiners at the Naval Academy, states is no longer considered a disability, unless remarkably excessive, and even then is usually waived by the department, and the applicant admitted on probation that time may have an opportunity to accomplish the cure or amelioration, which is the common result. Had his friends known more of naval methods at that time, his disability would also have been waived, and he might have stood to-day high on the list of commanders in the navy, and became, as his talents and energy certainly would have made him, one of the most distinguished officers in the service. His case is only another instance of the trivial incidents which influence the careers of men in this world.

For a brief period after his disappointment, he went to Kansas on the staff of John W. Geary, Governor of the Territory, and endured the hardships and was exposed to the demoralizing influences of border-ruffian life.

While a pupil at the High School, he had manifested the same artistic talent which had been possessed in so remarkable a degree by his cousin, William B. Gihon, who, thirty years ago, was one of the most

distinguished of American designers and draughtsmen, and who had but recently died, also in the beginning of his career, from lockjaw, following severe injuries caused by being thrown from his carriage.

Having been disappointed in his first choice of a profession, the subject of our memoir concluded to make art his vocation, and after a highly satisfactory examination he was admitted as a member of the life class of the Academy of Fine Arts, and at once evinced the promise of a brilliant reputation.

Soon after this, however, a series of domestic misfortunes, culminating in the death of their sister Charlotte, in 1857, a young lady of great personal attractions and loveliness of character, who was idolized by her brothers, left their family entirely dependent upon the two boys. The senior brother was then in China, and the younger, anxious to assume his share of responsibility, determined to seek active employment in some more remunerative calling than that which his pencil and brush alone offered.

Chance threw him into intimate acquaintance with Edward L. Morgan, a nephew of Mr. Samuel Broadbent, the photographer, and a youth about his own age, who had come to Philadelphia to pursue the business, in which his uncle had been so successful.

The two young men accordingly opened a gallery and studio at 1024 Chestnut Street (opposite the Academy of Fine Arts, and adjoining the St. Lawrence Hotel), which soon became deservedly popular on account of the artistic excellence of their work.

When Mr. Gihon became a photographer. he did not cease to be an artist, and to him as much as to any one in this country is due the elevation of photography from the mere machine routinism of a mechanical operation to the realm of art, where it properly belongs, and on which it confers so much lustre. During this time he was one of the original and active members of the Philadelphia Sketch Club; and some of his water colors are justly regarded as high specimens of that branch of art to which he especially devoted himself. At the same time he gave photography the benefit of his most careful study and research, and was soon recognized as an authority and master. Many of the greatest improvements and inventions of modern photography are his work. He had little fondness for mere cheap portrait making of the carte de visite order, but he encouraged the employment of photography for higher objects, making it the handmaid of the artist, and not his substitute. Among other scientific applications, he very early interested himself in the work of photographing pathological specimens and cases of rare diseases, and produced the plates of the Photographic Journal of Medicine, some of which were of such high order of excellence as to elicit the admiration and enthusiastic praise of the medical profession in all countries.

On the retirement of Mr. Morgan, Mr. Gihon remained alone at Chestnut Street, and for about ten years conducted a prosperous business, when, in 1868, the death of his mother, a woman of remarkable mental ability and rare moral worth, and who was beloved with more than ordinary filial affection by both of her sons, the elder of whom was again absent in Japan, combined with other causes, induced him to remove to 812 Arch Street, where he injudiciously opened a huge establishment, the enormous expense of which, particularly for an exorbitant rent, fastened upon him by a long lease, soon brought misfortune in the train of years of uninterrupted success. The gifted brush, which had gained him renown and recompense in his neat little studio on Chestnut Street, could not meet the largely increased demands of the immense gallery he had so imprudently taken upon his hands, and in a little more than three years he was compelled to abandon the enterprise at the sacrifice of all his former earnings, and he determined to try his fortune in foreign countries. The lingering fondness for travel, which had made him so anxious to enter the navy, and which his disappointment had not wholly destroyed, undoubtedly influenced him in this decision. Accordingly, in 1871, he removed, with his wife, whom he had recently married, to Montevideo, and remained there and in the city of Buenos Ayres until 1876, when he returned to Philadelphia, to accept employment with the Centennial Photographic Company, with which he did much good service, and remained until 1877.

Tempted once more to go abroad, he went to Venezuela, and was connected with the Callao Mining Company, when his health, which had been failing for some years, rapidly succumbed, and he determined to return to his home in Philadelphia, where his wife and three little children had remained, and were awaiting his summons to join him. He left Ciudad Bolivar, on the 29th of August, and died at sea, of general debility, on the 16th of September, in the fortieth year of his age, only four days before the arrival of the vessel at New York.

Mr. Gihon was master of our art. There was no branch of it with which he was not most familiar, practically; and he could work at the camera, in the dark-room, out of doors or in-doors, or at the easel or retouching-frame with equal facility and success. Moreover, he was equal to any emergency, never seeming discomfited by any accident or breakage, and always ready with a make-shift. He was the greatest adept at "doctoring" broken and injured negatives we ever saw, and apparatus in similar condition, or chemicals either, became well under his ministrations. We never knew but one other like him, the lamented Howard Peale, who was drowned several years ago.

As an author, our readers are familiar with Mr. Gihon's ability. All of them have been benefited by his talent in this direction, and it is here that our personal loss by his demise is most deeply felt. His "Scraps," which have appeared in these pages during the past year, have been very valuable, and we had talked up many other plans for the future, which, alas, cannot now be carried out. His Photographic Colorists' Guide was his pet production in this line, and is well worthy of its talented author, being a model of conciseness and adaptation to the wants of the learner as well as of the experienced Whatever he wrote was plain, colorist. clear, and full of instruction.

What more can we say in memory of our departed friend? We all are losers by his death, and we can now only mourn that he was so early in life taken away from us and from the art to which he was so warmly devoted. He has left a wife, well versed also in our art, and three little children to mourn

his loss, and, worse than all, in needy circumstances. It has been proposed that effort be made to raise a fund for their behalf, as a testimonial to the value of our dead coworker.

Any one disposed to contribute to such a fund may send it to Mrs. Gihon in our care, or we will supply her address.

Every one can buy a copy of his Colorists' Guide, at \$1.50 per copy, and we promise to devote one-third of the proceeds from the sale of it during November to this testimonial fund. We hope the copies will be taken up rapidly. If you do not want it, buy it and give it to a friend. This offer is written entirely without consultation with the relatives of Mr. Gihon, but we know there is need of it, and for the good he has done, let us remember the helpless wife and children.

#### GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON.

SERIES No. 11.

Dry-plate and other processes not generally understood.

"DRY processes may be divided into two classes; first, those prepared by the aid of the bath; second, those prepared by an emulsion of the salt of silver in the collodion."

The Gum-Gallic Process.—"The plates must be thoroughly cleaned and albumenized, as for the ordinary wet negative making. If anything, the albumen can be used in a more dilute condition.

"Collodion must be selected that, by the usual method of working, gives a brilliant and intense negative. It should be modified by adding an extra grain of bromide to each ounce.

"The sensitizing bath should contain about forty grains of nitrate of silver to the ounce of water.

"The plates should be immersed for seven minutes in summer, and ten in winter, in order to convert the whole of the bromide into the silver salt. They should be moved up and down in the bath till all greasiness disappears, and should then be left quiet till just before withdrawal.

"The plate should be washed in two

dishes of distilled or pure water. In the first, the greasiness should be washed off; the plate should then be transferred to the second, where it should remain till the next plate is ready for washing. It should next be transferred to a trough holding a considerable quantity of water, and allowed to lay for half an hour. By this long washing, the plate is freed of its last traces of the free nitrate of silver, which will insure its keeping qualities. Finally, the plates should be rinsed with a little pure water, and then coated with the following preservative:

- "No. 1. Gum Arabic (picked), 20 grains.
  Sugar Candy, . . . . . . . . . . 6 drachms.

  "No. 2. Gallic Acid, . . . 3 grains.
  Water, . . . . 2 drachms.
- "No 2 is prepared with the aid of heat, and is then mixed with No. 1. The preparation should be filtered through paper that is chemically pure, and all of the ingredients must be reliable and uncontaminated with foreign matter.
- "The plate is now drained and placed in the drying-box; but one corner of it should rest on the blotters. It should dry spontaneously, and then be stored away in a suitable box. If it should appear dull before exposure, it should be gently heated before being placed in the dark slide.

"Great latitude in exposure is admissible; it should rarely be less than four times, nor more than twenty times, that required for wet plates under ordinary circumstances.

"The most satisfactory development for these plates is by acid, iron, and nitrate of silver solutions.

- "No. 2. Protosulphate of Iron, . 30 grains.

  Water, . . . . 1 ounce.
- "Half the quantity of the water in No. 1 should be taken, and the gelatin allowed to soak in it till it be thoroughly swelled. The remaining half of the water should be added in a boiling condition. The acetic acid should next be poured in, and the whole allowed to cool.
- "One part by measure of No. 1 should be mixed with three parts of No. 2, and then

filtered. It is inexpedient to mix more than is necessary for present use, as the iron undergoes oxidation. To every drachm of developer used, one drop of a solution of nitrate of silver (thirty grains to the ounce) should be added just previous to the application to the plate.

"After exposure, the plate should be immersed in a dish of lukewarm water for a few moments, in order to soften the gum. It is rinsed well and flowed with the developer. If the timing has been good, the image will at once begin to appear. As it develops, more silver solution must be added (two or three drops at a time), till all of the detail is visible. The film must be again washed and intensity obtained with the ordinary pyrogallic and silver solutions. Should it be inferred that the plate is overexposed, more of No. 1 may be added to the developer. It is important that the silver solution be added to the developer previous to flowing over the plate. The plate may be fixed either by hyposulphite or by cyanide, as for wet plates."

The Coffee Process .- "The plate is coated and the film sensitized in the ordinary way. After remaining in the bath for some three to five minutes, it is taken out and plunged into a bath of distilled water. A flat dish answers perfectly. Care must be taken that there is no stoppage in immersing the plate; if there be, greasy marks will be seen on the developed plate. The plate should remain in this bath till all greasiness has disappeared; it should then be transferred to a second dish, and left there till it is time to coat it with the preservative solution. Ordinary water answers in lieu of the distilled, if it do not contain much of the alkaline chlorides of iron. The preservative is formed as follows:

- $\begin{array}{ccccc} \hbox{``No. 1. Boiling Distilled Water,} & 5\frac{1}{2} \hbox{ ounces.} \\ \hbox{Mocha Coffee,} & . & . & \frac{1}{2} \hbox{ ounce.} \\ \hbox{White Sugar,} & . & . & . 90 \end{array}$
- "No. 2. Distilled Water, . . . . 5½ ounces.

  Gum Arabie, . . . 90 grains.

  Sugar Candy, . . . 20 "
- "No. 1 is allowed to cool in a well-corked bottle, and both solutions should then be filtered and mixed. It is found convenient

to pound the gum arabic and sugar candy in No. 2 before adding the distilled water.

"The film may be coated with the preservative in the ordinary manner; two applications of a minute's duration being necessary. It is better to use a flat dish to immerse the plate in for two minutes, as evenness of coating is thereby insured. The plate should then be placed on end, upon folds of blotting-paper, to drain, previous to placing it in the drying-box. The same precautions for drying are to be observed in this as in other dry processes. When thoroughly dry, the surface of the film assumes great brilliancy, and exhibits neither stain nor fog by transmitted light. If a cloudy aspect be on portions of the film, a heated flat-iron passed over it, an inch from the surface, will restore the brilliancy, and the plate will be fit for use. The plates being very transparent, blurring of the image is sometimes apparent. In such a case, 'backing' the plate with Gihon's Opaque must be resorted to.

"Before development, the plate should be covered with, or else immersed in, rainor good ordinary water for three or four minutes, and kept in motion. The water should then be drained off. For an  $8\frac{1}{2} \times 6\frac{1}{2}$  plate the following must be flooded over it:

"Sat. Solution Carbonate of Ammonia, . . . . 8 drops.
(Or, in its stead, four drops of Concentrated Liquor Ammonia.)

Water, . . . . 4 drachms.

"This is worked over the plate till the image begins to appear, or till there is no further action caused by it. Return this from the plate into the developing-cup, in which shall have been dropped from one to two drops of the following:

"Pyrogallic Acid, . . 60 grains.
Alcohol, . . . 1 ounce.

"The ammoniacal water, with this solution added, should be now swept over the plate in a manner similar to that employed in developing a wet plate, as its action is extremely rapid. The image will now appear fully by reflected light but be barely visible by transmitted light. The action of this solution must be continued till every possible detail in the shadows is brought

out. The image may now be intensified by the ordinary pyrogallic intensifier; but it will always, by this method, appear transparent. To prevent this, M. De Constant used the following before the final pyrogallic intensification:

"Ammonia-sulphate of Iron, 45 grains.

Sulphate of Copper, . . 45 "

Citric Acid, . . . 45 "

Water, . . . . 3½ ounces.

"Two or three drops of a twenty-grain solution of iron may be added to this after the first application. On the second application the negative becomes of a color resembling a wet plate. The ordinary intensifier should be used after this. If the negative tends to become solarized (i.e., to turn a reddish color in the shadows), it should be fixed at once, and intensification take place afterwards. Fix with either hyposulphite of soda or weak cyanide of potassium."

The Collodio-Albumen Process.—"The plate being sensitized as usual, is washed thoroughly till all the free nitrate of silver is removed. It is then flowed with

"This operation should be repeated twice, taking fresh solution every time. The salts are first dissolved in the water, next the ammonia is added, and then the solution mixed with the albumen. The whole is beaten to a froth and allowed to settle. The clear liquid should be decanted off and filtered for use.

"The plate is drained and set up to dry. At this stage it is quite insensitive to light if no bromide be present in the collodion. Before use, resensitizing must take place. Prepare a bath as follows:

"Nitrate of Silver, . . . 30 grains; Glacial Acetic Acid, . . .  $\frac{1}{2}$  drachm. Water, . . . . 1 ounce.

"Into this the dried plate must be dipped, and be allowed to remain for some minutes; ten will not hurt it. After withdrawal, it must be thoroughly washed, and then be set up to drain. When the excess of water has been absorbed, it is placed in the dryingbox, and allowed to dry spontaneously.

"These plates possess the advantage of keeping almost indefinitely after exposure. The required exposure is long; in fact, it is almost impossible to overexpose. From ten to twenty times the exposure given to a wet plate can be used. To develop, wash the plate and flow it with

- "Pyrogallie Acid, . . . 3 grains.
  Water, . . . . 1 ounce.
- "Bring out *nearly* all the detail, but leave a little to be done by the subsequent intensification. To bring up the image to printing density, the following is applied with three or four drops to each ounce of a solution of nitrate of silver (thirty grains to the ounce of water):
  - " Pyrogallie Acid, . . . 2 grains. Citric Acid, . . . . . . . . . . . . . . . 1 ounce.
- "An under-exposed picture may be forced up by using the plain pyrogallic solution warm, and also by alkaline development."

Hot-water Process.—"The last process may be varied by immersing the plate, immediately after it is floated with the preservative, in boiling water, to coagulate the albumen, and flowing over it a saturated solution of gallic acid in water, and setting up to dry. The development may be as above."

Tannin Process.—" After sensitizing and washing, the plates are preserved with

- "Tannin, . . . 10 to 15 grains.
  Distilled Water, . 1 ounce.
- "To develop a plate, it is first flooded with alcohol and water, and then washed. The developing solutions are:
- "No. 1. Pyrogallic Acid, . 144 grains.
  Alcohol, . . . 2 ounces.
- "No. 2. Nitrate of Silver, . . 60 grains.
  Citric Acid. . . . 60 "
  Distilled Water, . . 3 ounces,
  - "Take of
- "Flow this over the plate till the detail is well out, when five or six more drops of No. 2 must be added to give intensity."

Tea Process.-" The plate, after sensitiz-

ing and thorough washing, is immersed in an infusion of tea. This latter is prepared by pouring about ten ounces of boiling water on half an ounce of good black tea. After standing one or two hours, it is filtered, and is ready for use. It will not bear the addition of either gum or sugar. The plates require about three times the exposure of wet plates, and should be developed within twenty-four hours afterwards."

Beer Process.—"To each ounce of ale or beer add one grain of pyrogallic acid, and flow over a sensitized and well-washed film. When dry, and exposed, it can be developed by plain pyrogallic acid, or by strong alkaline development."

The Collodio-Bromide Process "is different from any of the others thus far described. The use of the nitrate of silver bath is avoided, and with it many of its inherent defects. No iodide is employed in the collodion, it is merely bromized. The bromide of silver is formed by the addition of nitrate of silver, either in powder or else dissolved in alcohol, to the collodion. An emulsion, as it is termed, of bromide of silver takes in the collodion, and is held suspended by it. The plates may be prepared either with an excess of soluble bromide for the amount of silver added or vice versa. The following gives a slight excess of soluble bromide.

"Mr. Cooper's formula for the collodion stands as follows:

- "Ether .730, . . . . 4 ounces.

   Alcohol .805, . . . 2 "

   Bromide of Cadmium,
   . 40 grains.

   Bromide of Amuonium,
   . 24 "

   Pyroxylin, . . . . . . . . . . . . . 40 to 50 grs.
- "Twelve fluid drachms of this are measured into a four-ounce bottle. Having fused a sufficient amount of nitrate of silver for the purpose, and powdered it very finely, weigh out 34½ grains and place it in the bottom of a clean test-tube. Pour 3 drachms of alcohol, .825, upon it, and raise it to the boiling-point, shaking the silver in the alcohol occasionally. When cooled, pour off the dissolved nitrate of silver from the undissolved nitrate into the collodion, little by little, shaking between each addition. Next add 3 drachms of alcohol to the undissolved portion; boil, let cool, and add as before.

It will be found that the whole of the silver is dissolved, and the emulsion of bromide of silver will be complete, though there will be an excess of 11½ grains of nitrate of silver, 23 being sufficient for the 12 drachms; 12 drachms of the plain bromized collodion are next added, and here the bromide is in excess. In this condition the collodion can be kept for any length of time. When required for use, 112 grains of silver, dissolved in two drachms of alcohol, are added in the method described above. After standing about an hour, the collodion is fit for use. If requisite, it may be filtered through tow which has been thoroughly boiled in soda and subsequently well washed. By adding the nitrate of silver in excess at first, the whole of the bromide is converted into bromide of silver, and a small portion enters into chemical combination with the pyroxylin of the collodion. The last addition of the silver, therefore, leaves the bromide in slight excess, which is desirable for clean work.

"If collodio-bromide be fully sensitized with silver, it is found that in three or four days' time it loses its sensitiveness. This may be avoided by adding each time, after preparing plates, a certain quantity of the bromized collodion to the residue, and resensitizing it, as before, when required.

"The plate is coated in non-actinic light, in the ordinary manner. When the film has set properly, immerse the plate in pure water until the greasiness has disappeared. Withdraw it from the dish and then immerse in a solution made as follows:

### (Mr. Cooper's Preservative.)

"Gum Arabic,		15 grains.
Tannin, .		4 "
White Sugar,		4 "
Distilled Water,		1 ounce; or,

(The Liverpool Dry-plate Company's Preservative.)

" Tannin,			15 grains.
Alcohol,			15 minims.
Water,			1 ounce.

"Collodio-bromide plates are usually very transparent, and consequently require a backing. Nothing can be found more suitable, more easily applied, and more readily removed, than 'Gihon's Opaque.' "Alkaline development is usually employed, and for this method it is necessary to have the following solutions ready:

"No. 1. Pyrogallic Acid, . 3 grains.
Water, . . . 1 ounce.

(This will not keep long, but should be made when required.)

"No. 2. Carbonate of Ammonia,  $1\frac{1}{2}$  drachms. Water, . . . 1 ounce; or,

No. 2. Liquor Ammonia, . 1 part. Water, . . . 12 parts.

No. 3. Bromide of Potassium, 1 grain. Water, . . . 1 ounce.

No. 4. Nitrate of Silver. 20 grains.
Citric Acid. 25 "
Water, 1 ounce.

"Nos. 2, 3, and 4 will keep indefinitely.

"The film should be flooded with alcohol and water (equal parts) and worked over it for a couple of minutes, till the surface is softened. The 'backing' should be removed directly after flooding with the alcohol, and before the film is washed with water. By this procedure there is no danger of the coloring matter adhering to the film. The plate should then be well washed under the tap. If there be every reason to suppose that proper exposure has been given, make a developing mixture in the following proportion:

" No. 1,			1 drachiu.
No. 2,			1 drop.
No 3			1 6

"Sufficient should be taken to well cover the plate. Nos. 2 and 3 should be first dropped into the developing-cup, and finally No. 1 is added. Flood this over the plate. The images, if everything be en regle, should appear quickly, and the developer should be worked over the plate till all detail appears by reflected light. When this happens, another drop of No. 2 to each drachm should be dropped into the measure, and the solution be poured back on to it as before, and the intensification with the stronger ammoniacal solution proceeded with. The intensity will gradually be increased, and it may happen that No. 4 is not required, the requisite density being obtained without it. Should the density not be sufficient, one drop of No. 4, with a drachm of No. 1, may be mixed, and intensification takes place in the ordinary manner.

"Should the negative flash out at once on the application of the first developer, it is a sign of overexposure of the plate. The developer should immediately be returned to the cup and the plate washed. Two drops extra of No. 3 must be added to the developer, and the development proceeded with as before. The bromide of potassium keeps the shadows bright, and acts as a retarder; so much has it the latter qualification, that if a large quantity be added, the plate will refuse to develop at all. It is better to fix an overexposed picture immediately the detail is all out, and intensify with pyrogallic acid and silver afterwards.

"If traces of the picture refuse to appear after an application of the primary developer, for three or four seconds, a fresh developer should be made up similar to the above, omitting the bromide of potassium. The picture will probably appear satisfactorily when this course is adopted. When the detail is well out, the intensification should be carried on as given above.

"The negative should be fixed with weak eyanide or hyposulphite of soda."

#### MR. KENT AND HIS HANDSCREEN.

BY E. K. HOUGH.

DURING my "outing" this summer I spent a week visiting relatives in Rochester.

A visit to Rochester is always a renewed pleasure to me, for it is set down in my book of remembrance as one of the three most beautiful cities I have ever seen, being Cleveland, Ohio, Columbia, S. C. (ante-bellum), and Rochester, N. Y.; these three, and the greatest of these is Rochester.

We photographers all know that the greatest blessing a benign Providence has bestowed in these later days on an undeserving world, is the art of photography, and it would seem but right that so fine a city should get a lion's share in the blessing; and in this case the right wins, for it is well understood that Mr. Kent is one of the best photographers in our country. He is so well known that any extended description

would be superfluous. I shall only mention, therefore, two or three points which I think may be of special interest to your readers, as they were to me.

In a recent article about Mora I spoke of the fact as remarkable, that he made no color work, but had given his whole strength to plain photography, and had, through it alone, achieved his great success.

Mr. Kent has taken nearly the same ground, as I infer from the fact that among the fifty or sixty specimens on the walls of his reception-parlor there were but three colored pictures, and those were small and not prominently displayed, seeming more like lingering remnants of past seasons than indicators of present activities.

The principal part of his display was such large and superb plain photographs as formed the main part of his Centennial exhibit, and I learned that a large part of his receipts come from such large plain work. He also makes quite a specialty of plain photographs sealed upon convex glass with gelatin, some as large as  $14 \times 17$ , as cheap and more beautiful than glacés.

But the point of most interest for me was his use of the celebrated "Handscreen." I saw him make five positions, using the handscreen, as I understand he does with every subject for bust portraits, and in neither case did the movement of the screen over the sitters' heads exceed ten or twelve inches, just enough to slightly modify the top-light, shutting out or letting in a little more or less on either side. My misconception of its use was almost as great as the editor of an English journal who, in a recent article described Mr. Kent as swinging his screen around his sitters' heads in a style quite likely to make them frightened and nervous.

In speaking of how little its use was understood, I asked Mr. Kent if he had read the English editor's article; he said "Yes," laughingly, "and he must think I use it something like a wind-mill." I think the prevailing idea of it is something about as vague and wild, while in fact it is only a more convenient and controllable form of the old stationary headscreen; and the advantages sought and attained by its use are precisely the same, Shutting out sharp high-lights,

and giving a softened and diffused effect to the light. Yet Mr. Kent's pictures have none of the flat look of pictures taken under an umbrella; they are full of detail in the lights, and very transparent in the well defined shadows.

Mr. Kent makes his bust pictures mostly under the light, working the camera all around the room looking towards that centre. Four out of the five sittings I saw were made with the camera nearly facing the side-light, the subjects sitting with their backs to the light or nearly so. The side-light was quite heavily screened, although the day was cloudy, being covered up two-thirds its height with both white tissue-paper and white muslin. The exposures were somewhat prolonged, from thirty to forty seconds, with what must have been very sensitive plates, for the light was very subdued, yet the negatives were vigorous and full of printing quality.

The handscreen used was a thin, white muslin, about two feet at the widest, stretched over an egg- or pear-shaped willow hoop at the end of a light pole, about the length and weight of an ordinary jointed bass fishingrod; in fact I am now using my rod in that way, and it answers admirably. Having used it since my return to business, I can confidently affirm that it is a very handy and useful implement for general use under the light, and almost indispensable for the best class of Rembrandtish effects. Its cost is almost nothing, and any one can make it; facility of using it is easily acquired, and the right to use it has, I believe, been freely given. I would, therefore, candidly advise every photographer who wants to increase his power of controlling the light, to make one and try it. It is a good thing, and you Kent afford to be without it.

NEW YORK, October 7th, 1878.

#### MR. WEBSTER STRIKES AGAIN.

I SEE by the last number of the *Bulletin* that the dogs are still yelping and howling at you, but like barking dogs in general, their bark is worse than their bite. By the way, I understand that this "lightning" man and the *dark*ning (carbon) man are not one and the same, as most persons would

naturally suppose, judging by the bark; but I am convinced that they are of the same family and keep the same barker. However that may be, I am surprised that Lambert can find so much to say about a matter of so little importance.

In the first place, I think the so-called "lightning process" is of very little practical utility, even if it proves to be all that is claimed, because in all ordinary practice every good photographer can make sufficiently brief exposures to secure the desired effects, and even if the average exposures could be reduced to from one to five seconds, the average failures would be greater than when the average exposures were from five to thirty. Many and many a sitter moves, or puts on a fictitious or assumed expression at the commencement of a sitting which passes off before the finish. Again, it is almost impossible to time the exposures properly, in making two or three-second sittings. One second too long or too short fails to give the desired result, and you can seldom depend upon striking the exact moment when jumping-Jack or Shakes-pere will be still, even for two seconds.

But the lightning-rod man seems to feel the worst, because you didn't publish Smith's letter of recommendation. Fie, fie, Mr. Man, don't make such a fuss! nobody cares about reading Smith's letter, but if you are so anxious to have it published why don't you do it yourself? The editor of a magazine or paper has a right to print such articles as he thinks proper. It is his duty to use the utmost caution in regard to matters affecting the interests of his patrons; but when he believes that certain men or measures are not calculated to advance the interests of the cause which his paper represents, then he should oppose them; and if he oppose, how can you expect him to publish articles of approval? No one would expect to find Protestant articles in a Catholic paper, or Republican articles in a Democratic paper.

If the lightning-rod man thinks Mr. Wilson committed the unpardonable sin, by failing to publish Smith's letter, why don't he show the manly part by publishing letters from those persons who have tried and condemned the process? (I happen to know

of at least one such), and have no doubt there are many others; but if any one dares to express an opinion which is unfavorable, the lightning-rod man pitches in his Billingsgate and abuse, hoping to smother his evidence, as the loathsome cuttle-fish emits from his own vile body the filthy cloud which screens him from the sight of his less gifted pursuers.

As for that "permit" business, suppose one of the Simon-pure "permitters" should allow me to make a thorough trial of the process, just as the same was sent to him, and I should pronounce it impractical, wouldn't the lack of a registered \$20 "permit" at headquarters, make a pretty thin argument to vitiate my evidence? Can it be possible that there is a subtle charm imparted to "them ingredients" by the simple act of passing over a double X?

Finally, it does seem to me that there has been too much talk and temper wasted upon this subject. It is of but little consequence anyhow, for but very few good photographers in this country care to change their way of working, even though the new process cost them nothing, and sale of the chemicals was not in a constipated condition. Unlike London or Paris, we are favored with a sunny and smokeless atmosphere, and exposures of from two or three seconds to thirty will cover the general working time of a majority of the really good photographers, and the subjects who cannot be kept tolerably quiet for that length of time are few and far between, and it don't pay to fuss with them.

I have heard of photographers who seemed to crave the distinction of being able to catch "babies and things" on the "fly," but I have never heard that Mora, Sarony (Lambert's own uncle), or any of that style of men, boasted of such things; they are not quite up to that, and they are even so old-fogyish as to make use of head-rests, and are careful about posing and lighting, and then they even expect their sitters to "stay put," and to perform their part to the best of their ability, if they desire nice results.

E. Z. WEBSTER.

NORWICH, CONN.

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#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E.

(Continued from page 296.)

METALS.

TRON (atomic weight, 56; symbol, Fe). I Iron is the most important of all metals to the human race. It would hardly be too strong an expression to say that upon it rests modern civilization. It is of all metals the most widely distributed in nature, neither is it restricted to the inorganic kingdom. In but very few cases has it been found in the metallic state, but as bisulphide (iron pyrites) and in an oxidized state it is found everywhere and all over. As it is rather difficult to reduce from its ores, it was long unknown to man; still, it has been in general use for no mean period of time. Pure iron is of a white color and brilliant lustre. It does not oxidize in dry air, except when heated to redness, while at a high white heat it burns brilliantly, that is if it be in mass, but if in a finely divided powder, it will take fire spontaneously and burn in dry air, so rapid is the oxidation. Iron, however, is never used in the pure state in the arts. There are always present, besides other things, carbon and silicon. On the amount of carbon present, more particularly, depends the kind of iron. Thus there are distinguished three classes of iron: I. Wrought iron; II. Steel, and III. Cast iron. The first of these is the nearest to purity; the second contains more carbon than the first, while the third contains the greatest amount. The different characteristics of these three classes are too well known to need description. There are four oxides of iron, thus: FeO, Fe2O2, Fe3O4, Fe<sub>2</sub>O<sub>6</sub>.

Ferrous oxide or protoxide of iron, FeO, has not been prepared in a pure state, owing to the fact that it rapidly absorbs oxygen and forms a higher oxide; its hydrate may easily be prepared though. This oxide forms with acids the ferrous salts, of which ferrous sulphate, green vitriol (FeSO<sub>4</sub>), may be mentioned as one of the most important. The oxide colors glass green; witness common green bottle-glass, which has iron to thank for its verdant complexion.

Ferric oxide, or sesquioxide of iron, Fe<sub>2</sub>O<sub>3</sub>,

occurs in nature in many minerals, and is also easily prepared artificially; with acids it forms the ferric salts. To mark clearly the difference between the ous and the ic salts, an example will be given: Take ferrous oxide and sulphuric acid, forming ferrous sulphate, FeO+H<sub>2</sub>SO<sub>4</sub>=FeSO<sub>4</sub>+H<sub>2</sub>O; now take ferric oxide and sulphuric acid, forming ferric sulphate Fe<sub>2</sub>O<sub>3</sub>+3H<sub>2</sub>SO<sub>4</sub>=Fe<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>+3H<sub>2</sub>O.

Proto-sesquioxide of iron, or magnetic, or black oxide of iron Fe<sub>3</sub>O<sub>4</sub>, occurs quite frequently in nature (the loadstone is a good example). It is highly magnetic, to which fact it owes one of its names. It does not form a series of salts with acids.

Ferric acid,  $\rm H_2FeO_4$  (Fe $_2O_6+2\rm H_2O$ ), is known only by its salts, which are very unstable. The acid and oxide have never been separated.

Chromium (atomic weight, 52.5; symbol, Cr). Chromium is not very widely distributed in nature, and is not obtained at all easily in a metallic state. It is supposed to be the most infusible metal known. It is, however, a quite important element, not so much in its metallic state, although there is a steel called chrome steel, which utilizes it, but on account of its salts. Chromium has four oxides, namely, CrO, Cr<sub>2</sub>O<sub>3</sub>, Cr<sub>3</sub>O<sub>4</sub>, and CrO<sub>3</sub>.

Protoxide of chromium, or chromous oxide, CrO. Like the corresponding oxide of iron, this has never been obtained in a free state. It forms a series of salts with acids.

Sesquioxide of chromium, or chromic oxide, Cr<sub>2</sub>O<sub>3</sub>, can easily be prepared and is quite stable. It imparts a fine green color to glass, and is sometimes used in enamel painting. It forms a series of salts with acids. Trichromic tetroxide produces no salts; it corresponds to the magnetic oxide of iron.

Chromic trioxide,  ${\rm CrO_3}$ , crystallized in beautiful, long, ruby-red crystals, it is very deliquescent, uniting very readily with water, to form chromic acid  ${\rm H_2CrO_4}$  ( ${\rm CrO_3}$  + ${\rm H_2O}{=}{\rm H_2CrO_4}$ ), which forms a series of salts called chromates, either red or yellow. All chromates are noted for their brilliant color, and more than one of them are employed as pigments.

MANGANESE (atomic weight, 55; symbol, Mn). Manganese was discovered by Gahn, in 1774. It occurs quite frequently in nature, and is not reduced very easily to its metallic state. It is then, that is in its metallic state, of a reddish-white color, very brittle and quite hard, sufficiently so to scratch glass. It decomposes water at ordinary temperatures, and is slowly oxidized by contact with the air, so that it must be kept in a closed tube or under naphtha. It is of no use in the metallic state. Its alloy with iron is used in the manufacture of steel, otherwise it is of more importance to the chemist than to any one else. There are several oxides; thus, MnO, Mn2O3, Mn3O4, MnO<sub>2</sub>, MnO<sub>3</sub>, Mn<sub>2</sub>O<sub>7</sub>.

Protoxide of manganese, or manganous oxide, MnO, is of an olive-green color, and is not very stable; with acids it forms the manganous salts.

Sesquioxide of manganese, or manganic oxide,  $\mathrm{Mn_2O_3}$ , occurs in nature and may easily be prepared artificially; with acids it forms the manganic salts.

Binoxide, deutoxide, or peroxide of manganese, MnO<sub>2</sub>. The black oxide of manganese, used for making oxygen and in the manufacture of chlorine. It is also quite a valuable oxidizing agent. It does not produce a series of salts with acids.

Mangano-manganic oxide, or red oxide of manganese, Mn<sub>3</sub>O<sub>4</sub>, corresponds to the magnetic oxide of iron. It forms no definite salts with acids.

The remaining two oxides, manganic anhydride,  $MnO_3$ , and permanganic anhydride,  $Mn_2O_7$ , have not been separated, but are known only in connection with their acids, manganic acid,  $H_2MnO_4$ , which forms manganates, and permanganic acid,  $HMnO_4$ , which forms permanganates.

Tin (atomic weight, 118; symbol, Sn). Tin is one of the earliest metals known to man. It is a white metal with a brilliant lustre. It is quite soft, malleable, and ductile, but devoid of tenacity. When a bar of it is bent it produces a peculiar creaking sound. Tin is not affected to any extent by air, either moist or dry, but if heated strongly in the air it burns, forming a white oxide of tin. Owing to its permanence, it

is often made use of to protect iron plate, covering the iron with a coating of the tin, forming "tin plate." Tin is quite important in forming alloys. There are britannia metal (tin, brass, antimony, and bismuth), pewter (tin and lead), queen's metal (tin, antimony, bismuth, and lead), plumbers' solder (tin and lead), speculum metal, for making metallic mirrors (tin and copper), bell metal (tin and copper), gun metal (tin and copper), bronze (tin, copper, and zine), and others of less importance. There are two oxides of tin that will be mentioned, SnO and SnO<sub>2</sub>.

Protoxide of tin, or stannous oxide, SnO, may be prepared, but it is unstable, rapidly absorbing oxygen and forming stannic oxide; with acids it forms stannous salts.

Binoxide of tin, or stannic oxide,  $\mathrm{SnO}_2$ , occurs in nature and may be prepared artificially. It may exist in a hydrated state in two different forms, called metastannic acid,  $\mathrm{H_2Sn_5O}_{11}$ ,  $4\mathrm{H_2O}$ , forming metastannates, and stannic acid,  $\mathrm{H_2SnO}_3$ , forming stannates.

TITANIUM (atomic weight, 50; symbol, Ti). Titanium was discovered by Gregor, in 1791. It is quite rare, and neither in its metallic state nor as a saltisit used in the arts.

NIOBIUM, or COLUMBIUM (atomic weight, 97.5; symbol, NC).

Tantalum (atomic weight, 137.5; symbol, Ta). Niobium, or columbium, was discovered in 1801, by Hatchett, in a mineral called columbite. In 1802 Ekberg discovered tantalum in the mineral tantalite. These two metals were thought to be identical for some time. They have not been investigated into very much, and are but little known.

MOLYBDENUM (atomic weight, 96; symbol, Mo). Molybdenum is so called from the Greek, meaning "a mass of lead," because one of its ores looks very much like plumbago. It is not of frequent occurrence, and although quite useful in analytical chemistry, is not used in the arts, and would hardly repay a description of it here.

TUNGSTEN (atomic weight, 184; symbol, W). Tungsten is found in considerable quantities in some iron minerals. When in the metallic state it is a white, hard, and brittle metal; sometimes employed in small

quantities in the manufacture of steel. When heated to redness in the air it takes fire.

There are two oxides of tungsten: tungstic dioxide, WO<sub>2</sub>, and tungstic trioxide, WO<sub>3</sub>. The trioxide is the anhydride of tungstic acid (H<sub>2</sub>WO<sub>4</sub>) which forms a variety of complicated salts, called tungstates. Sodium tungstate is often employed in the arts to render fabrics uninflammable.

Vanadium (atomic weight, 137; symbol, V.) Vanadium was discovered by Sefström, in 1830. Very little is known about it. It is more of a curiosity than anything else.

Arsenic (atomic weight, 75; symbol, As). Arsenic has been known to the human race for a very long time. It is one of the elements that is often classed with the non-metals. When in the metallic state it is of a dark steel gray-color and brilliant lustre. It is quite brittle, sufficiently so to be powdered with ease in a mortar. When heated to dull redness it volatilizes without undergoing fusion, the vapor possessing a characteristic and very unpleasant garliclike smell. When exposed to dry air the metal is not affected, but if the air be damp the arsenic is slowly oxidized. When heated in the air, it takes fire and burns with a delicate blue flame. There are two oxides of arsenie, As<sub>2</sub>O<sub>3</sub> and As<sub>2</sub>O<sub>5</sub>.

Arsenic trioxide, arsenious oxide, or arsenious anhydride,  $As_2O_3$ . This is the substance commonly known as arsenious acid, or white arsenic, and is one of the most useful institutions for those that wish to commit suicide that is known. It is slightly soluble in water, forming then the true arsenious acid,  $H_3AsO_3$ , which forms the salts called arsenates.

Arsenic pentoxide, arsenic oxide, or arsenic anhydride, As<sub>2</sub>O<sub>5</sub>. This is the anhydride of arsenic acid, H<sub>4</sub>AsO<sub>4</sub>, an acid which forms salts called arsenates, and which resembles the tribasic phosphoric acid very much. Thus like we had trihydric phosphate, H<sub>3</sub>PO<sub>4</sub>, dihydric sodium phosphate, H<sub>2</sub>NaPo<sub>4</sub>, hydric disodium phosphates, HNa<sub>2</sub>PO<sub>4</sub>, and trisodium phosphate, Na<sub>3</sub>PO<sub>4</sub>, we have, in like manner, trihydric arsenate, H<sub>3</sub>AsO<sub>4</sub>, dihydric sodium arsenate, H<sub>2</sub>NaAsO<sub>4</sub>, hydric disodium arsenate, HNa<sub>2</sub>-AsO<sub>4</sub>, and trisodium arsenate, Na<sub>3</sub>AsO<sub>4</sub>.

Arsenic unites with hydrogen to form arseniuretted hydrogen, AsH<sub>3</sub>, a colorless gas, possessing the characteristic arsenic odor and acting as a very deadly poison.

Besides these, arsenic acts as a metal uniting with chlorine, bromine, etc., to form chloride of arsenic, bromide of arsenic, etc.

Antimony (atomic weight, 122; symbol, Sb). Antimony has been long known to man. It occurs sometimes in nature in the metallic state, but generally in ores from which it is easily reduced. It is, when in the metallic state, of a bright bluish color; quite brittle, crystallizing in the same shapes as arsenic. At ordinary temperature it is not affected by the action of the air, but oxidizes rapidly when exposed to the air when melted, and if heated more strongly it burns with a white flame. The most important use for antimony, probably, is in the production of alloys; it seemingly having a tendency to produce a hard and brittle allov. It is used in type metal, britannia metal, in conjunction with lead, tin, bismuth, zinc, copper, and what not. Like arsenic, it has two oxides, Sb<sub>2</sub>O<sub>3</sub> and Sb<sub>2</sub>O<sub>5</sub>.

Antimonious oxide,  $Sb_2O_3$ , unites with acids to form a quite important series of salts. useful particularly in medicine.

Antimonic oxide, or antimonic anhydride,  $Sb_2O_5$ , is the anhydride of antimonic acid,  $H_2Sb_2O_6$ , forming with bases antimoniates. Like arsenic, antimony unites with hydrogen, forming antimoniuretted hydrogen,  $SbH_3$ ; also, with chlorine, bromine, etc., as chloride, bromide, etc.

BISMUTH (atomic weight, 210; symbol, Bi). Bismuth, although not a rare metal, is not remarkably abundant. It is hard and brittle, of a pinkish-white color. It is not a very useful metal. It is used in an alloy, having a low melting-point, and which, on account of it expanding when cooling, is useful in taking casts of medals and the like. Some of the salts of bismuth are used in a medical way, some as pigments. There are two oxides, Bi<sub>2</sub>O<sub>3</sub>, and Bi<sub>2</sub>O<sub>5</sub>. Bismuthous oxide, Bi<sub>2</sub>O<sub>3</sub>, a yellow powder, formed when the metal is heated in the air; bismuthic oxide, Bi<sub>2</sub>O<sub>5</sub>, is an anhydride of an acid which forms bismuthates.

. (To be continued.)

## WHAT I KNOW ABOUT PHOTOG-RAPHY.

BY E. H. TRAIN, OF MONTANA.

I't is not much; I do not expect in this article to tell you anything new. I have not found any royal road to success, but if this should come under the eye of any poor unfortunate, who has not succeeded in getting entirely out of the fog, I propose to give him the benefit of my experience.

To begin with, a photographer ought to be able to make a good negative with as much certainty as a shoemaker can make a good shoe; if you cannot do it, you want immediately to commence the search after more light; you are groping in darkness. I fancy I hear some one say, "Can you?" Unhesitatingly I answer, "I can;" and if you like I will tell you how it can be done.

Arrange your dark-room so that it can be kept cool in summer and warm in winter, and be well ventilated (for health). Learn your light, and get control of it so that you can get your lights and shades to fall to suit you, taking care that the light on the eye is right, and do not get a "blind light" over the pupil. Buy none but the best chemicals, of reliable dealers. take a gallon of distilled water (more if your bath-dish will hold it, and it should not hold less); add nitrate of silver enough to make it thirty-five or forty grains to the ounce; when it is all dissolved, separate one-third from the rest and saturate the two-thirds with iodide of silver; filter well and pour back the other third; sun a day or two if you have time, or it will work without. Prepare your collodion after any good receipt (I have never found a better than the one given in "A Word to the Weak," in Mosaics for 1876). Next put four ounces protosulphate of iron in a two-quart bottle, add sixty-four ounces water, cork tightly, and lay it on the table or floor, where you can give it a roll semi-occasionally, and it will soon be dissolved; let it settle and filter off sixteen ounces, to which add one ounce acetic acid No. 8, and just enough alcohol to make it flow (which will be very little at first, and more as the bath accumulates alcohol from the plates dipped), and you have a reliable developer. Now try a plate, and see if it works clear. If there is any fog, add nitric acid C. P., a little at a time, to your bath, until it works clean.

The above is probably not the best formula in the world, but it is a thoroughly reliable one. Now your chemicals are all right, place your sitter so that his pose looks easy and graceful on the ground-glass (pay no attention to anything else); slide your head-rest up until it just steadies his head without changing its position; talk him into a good humor with himself and the world; and "shoot your gun off," and if you do not get a good picture it is your own fault; and if you do, you can do the same thing every time, as long as the conditions remain the same

The next thing is to know where to look for trouble when trouble comes. I see that some writers (who, by the way, are fine artists, and have had much experience) say they always look for it in their collodion. With me, on the contrary, if the trouble is not in the temperature of the rooms or chemicals, in ninety-nine cases in a hundred I find it in the bath. Heat causes various and sundry troubles, and cold some, although it is not so much to be feared. In hot weather, keep your bath-developer and plateholder cool. Immerse your plates with a very slow but even motion, and let as little time as may be elapse between the sensitizing and developing of your plates, and you will have little trouble from this source. But, to return, the change in collodion is very slow, and always in the same direction, and any sample that will work clear once ought to always, or at least for a long time. Of course it will lose sensitiveness with age, and will grow thick in the bottle you pour from from evaporation, but that is about all; while the change in the bath, particularly if it is a small one, may be rapid from the foreign matter introduced with the plates. I know that a change of collodion will sometimes remove a difficulty for the time, when, if the bath was all right, both samples would work. To illustrate, I once left my gallery in Montana (it is a long way from any place) in charge of a friend for some time, and when I returned he complained that none of the cotton that I left him would make collodion that would

work, and he had to send to Philadelphia for some, and showed me several bottles that he had made at different times and condemned. I told him that it ought not to be "thusly;" so I renovated one of his baths, and went to work and produced excellent work with every sample of his condemned collodion; but, from all this, I do not want you to infer that I would advise you to be always doctoring your bath; on the contrary, having gotten it in good working order, I recommend that you let it severely alone; put into it absolutely nothing but the cleanest of plates, and these only when necessary. Do not call in every paper by which to try your "kimicals" on; so long as it works satisfactorily do not change its quantity or quality. If a scum gathers on it, skim with blotting- or filtering-paper, and filter it only when necessary, and it should work for a long time. When, however, you do get into difficulty, be sure first that it is not caused by the temperature of your rooms or some similar cause, and that your collodion and developer are the same that have been giving good results; and then, if a little more acid in your bath will not set you right, I know no remedy but to renovate your bath by neutralizing and boiling, and that is a remedy that has never failed me for the last twelve years.

To be sure "that none go away dissatisfied," you should always have two or more baths in good working order, for it does not improve your reputation as an artist to tell people that your bath is not working well to-day, and they will have to come again. Usually, they will come no more forever.

To albumenize plates, soak them a few hours in dilute nitric acid, wash thoroughly, riuse with dish-water, and flow with albumen. While wet, flow them with about one-fourth ounce albumen to four ounces distilled water. Letting your plates dry after they come out of the acid will make the albumen refuse to flow.

Now, we can make good negatives; but about retouching, "aye, there's the rub!" that takes long and careful practice to do it well; but a few hints may not be amiss here. Round up and smooth your negative nicely, being very careful always to preserve but beautify the likeness. Soften and

blend, but do not obliterate your shades. Look to the end of the nose; it usually wants some retouching, and is often overlooked; and to the eye; but here you must be very careful. In all your retouching, strive to make it so fine that your prints do not show it. And now it may be for years, and it may be forever; but, gentle reader, farewell.

## VOICES FROM THE CRAFT.

WE are very glad to open this column again for the coming season. Winter is a time of peculiar difficulties in photographic work, and also a season when the craft has most time to read, think, and study for improvement. Let us hear from you on all sorts of useful topics, and keep this column alive.

#### JOHN L. GIHON.

I HAVE not words in which to express my sorrow at the loss the whole intelligent and reading members of the photographic fraternity must feel, when they read the announcement of the sudden death of our friend, J. L. Gihon. In his death our art has lost one of, if not the most useful, of its members. His contributions to your journal I have always esteemed as containing more practical common sense than those of all the other contributors, and I feel that the art has lost a friend whom they cannot well replace. His family (of whom I know nothing) have my sincere sympathy. A. HESLER, Evanston, Ill.

#### "SPOTTING OUT" PRINTS.

SINCE I wrote you about spotting prints for burnishing I have tried some experiments. Take an egg, beat it thoroughly, let settle, then take such colors as you want (india-ink being the base); rub them with the albumen on a palette; let dry. When wanted for use, have a little ammonia and alcohol, equal parts; dip your brush in the solution, then rub the color previously dried on the plate (palette). This will adhere readily to the print. Do this before putting on the soap and alcohol, or lubricator. I find it just the thing. It leaves no dead spots.

S. M. Robinson,

Pittsburg, Pa.

MR. HENDERSON'S FORMULA.

IT seems to me that, on page 281 of Photographer, some one has got Mr. Henderson's formula "somewhat mixed." In the formula for the silver bath it says boric acid, etc., then gives the developer following, which reads, "filter the developer through boric acid," etc. Now, is it intended to use boric acid both in the bath and the developer? Please explain so my thick head can see through it. The formula, also, lacks collodion, and this is an important item in making a negative. The developer without boric acid as given will only give black fog, unless about six times more acetic acid is added; then it works pretty well. A. Hesler.

Evanston, Ill.

We think if our friend Hesler would give the process a fair trial, as it is recorded, and not combine it in any way with his own formula, that he will be able to work it. Any good collodion will answer. Witness the following from Mr. Ormsby, late of Chicago:

I INCLOSE photographs of some children, made by the Henderson process (given in your journal), in one second, or as quick as I could uncap and cap the lens. I would like to see the "lightning" or double-lightning process that will beat it. My customers say, "Have you taken it? Why, I did not know you had commenced yet; I did not see you do it." It will head off the foreign process peddler. Photographers, try it.

E. D. Ormsby,

Oakland, Cal.

Mr. Ormby's pictures are simply splendid. One of a little girl is under a full laugh, and tickling a baby by its side.

## A FEW IDEAS.

When you wish to copy an oil painting, just take a sponge, wet it well, and keep the painting covered with water until the copy is completed.

Photographs copy better under water, but it is not always safe to wet them.

Use blue vitriol in the developer if you want quick work, and as collodion for the same, five grains iodide of ammonium and three grains bromide of cadmium to the ounce. Use it right away. Hance's Double

Iodized Collodion is a good article to have on hand.

We have not bought any quick process yet, as we can make pictures as quick as you can scorch a feather.

If you want to succeed in business, get your pay in advance, and do not make too many proofs without compensation. If people have no confidence in what you say and do and can show, their patronage will be of no benefit by placing in their hands your profession. A proof is a *lie* if it is not finished.

The only way to cure paper from blistering nowadays is to let it blister and hold your tongue.

Jas. O. Merrell,

Rutland, Vt.

RAPID processes are, in my opinion, all an illusion, a delusion, and a snare. There is a normal state of sensitiveness resulting from the use of pure materials mixed in proper proportions beyond which it is impossible to go. This state of sensitiveness is attained by any of the formulæ in general use, so that chemicals in good working order will always possess the same sensitiveness. The differences found result principally from errors in observation. I have no doubt but that a new set of lightning chemicals will be found, superior in sensitiveness to the chemicals used by many photographers, but they will not be found more sensitive than a set composed of new collodion of any good kind in the market, a slightly acid bath, and a rather strong developer. Opinions, based on loosely-made observations, are worth nothing. The only true test between two different sets of chemicals is the test made under the same conditions side by side, collodion against collodion, bath against bath, and developer against developer. G. W. W. B.,

Cincinnati, O.

#### CARBONIFEROUS CORRESPONDENCE.

Having read with a great deal of interest, from time to time, the various notices and comments upon carbon, lightning processes, etc., in your valuable journal, I take the liberty of writing directly to you, asking if you will favor me with a few lines in connection with the above processes. I should like to know whether the carbon process

has been universally adopted by the photographers of the United States? I am informed by reliable authority that, out of all the photographers in the New England States, there are scarcely any, comparatively, working the process to the exclusion of silver, and the majority have abandoned it (carbon) altogether, as it is more expensive and requires more skill and care to work it than silver printing. The following will explain my reason for asking this favor of you.

About a year ago, a W. Cooper, of and from St. Thomas, Ontario, came here to peddle this process, viz., carbon. He represented that after once seeing a practical demonstration of the process I would banish silver printing eternally (but I have not done it yet, neither likely to). I was gulled into paying \$200 cash for the practical demon-stration, and was to pay a further sum of \$300 for the "exclusive" right to work the process on the Island of Newfoundland, which I did not pay, nor will I, if I can avoid doing so. Now, this is just where the little bit of trouble comes in-my refusal to take up a promissory note for the amount. I refuse to pay, believing that they have no exclusive right to sell in this island; and further, I want to know how I am to be protected from usurpation. They have agreed to protect their licensees by not supplying the special materials to any persons, only licensees; but this is bosh, for my opponent in business has been offered the material from another manufacturing firm, and also had sent him the printed method of working the process, free, which I have been made to pay \$200 for. This happened before the note became due; fortunately for me it. did, as in the meantime I received a communication from Lindop & Cooper, offering to take less if I would remit a certain amount before the note became due. This, also, aroused my suspicions that all was not square; however, I took no notice of their communication, but carefully preserved the epistle, It may "develop" well in about a month. There has been no patent right granted to any one by our government, and I cannot see how they can sell me an exclusive right, or how they could manage to protect it. They have taken proceedings

against me for the recovery of \$400; now they are willing to have enough, when they can get it, but I will fight them to the death before I will pay that amount. I have employed the best lawyers in the city, and if it will interest your readers any, will let you know how the case terminates.

I see that Allen & Bowell, of Boston, are about to manufacture and supply the material for carbon working; if they are, the very fact will be the deathblow to their L. & C. claim here.

A few lines from you, bearing upon the "universal adoption" and eternal exclusion of silver printing, may help my case some, as I am collecting all the evidence I possibly can.

Now, had I it in my power, I would say to the subscribers of the *Philadelphia Photographer*, do not let your subscription run out, or you may lose as much as I did. Just while I was not receiving the journal (through carclessness) all the controversy about carbon rersus silver was going on, which I, unfortunately, did not know anything about. The result was that I was duped. Had I kept up my subscription and read its friendly pages every month, I would have saved \$200 cash and all the expense this lawsuit will incur.

I was awarded a diploma of merit from the New York Carbon Society for superior carbon printing. I never made a carbon picture, nor never sent a silver print to New York. How are we to interpret this little piece of forgery, or whatever it may be termed? I have this document in my possession now, and intend to use it to the best advantage.

SIMEON H. PARSONS,

Can our readers who have had experience in this matter help our friend?—ED. P. P.

St. John's, Newfoundland.

## A WARNING TO THE ECONOMICAL.

What a comment Mr. Parsons gives us above on the too frequent and unwise habit photographers have of "trying to get along without a journal." When will they realize that their trade magazines are just as useful to them, as a compass and a lighthouse are to the mariner? You are never safe without it, and it is the last thing you should practice economy upon. If you have

been guilty, do not do it again. You never know when it is going to be most useful, or when you may lose heavily by not having it.

## FRANCO-GERMAN CORRESPOND-ENCE.

HAVE spent a fortnight in Paris, and have gathered with great pains a general idea of the immense mass of photographic material stored in the Exhibition. As to the Exhibition, it surpasses, as usual, all previous ones in magnificence and greatness. The French photographic department is as large as the whole photographic pavilion at the Philadelphia Ex-The exhibits of other nations would take up an equal space. These are scattered over the whole Exhibition; found once among a pile of furniture, once surrounded by show-cases with soap, brushes, combs, etc. I do not exaggerate when I claim to have seen more than ten miles through the buildings before I had seen all the photographic products. The trouble is that there are no such facilities here, as there were in Vienna or Philadelphia, for the purpose of reaching the different points of the Exhibition. In Vienna was a street-car, in Philadelphia a narrow-guage railroad; here are nothing but rolling chairs, which one rather leaves to ladies or sick persons.

In the Rue des Nations, in the neighborhood of the fronts representing buildings of different nations, the photographs are generally found. Only the Austrian photographic exhibit is in a separate pavilion. As it could be expected, the exhibits consisted principally of portraits. A glance at the same will tell at once that there has been no great success made. Old known firms maintained their reputation. There is Sarony, Rocher, and Gutekunst, in America; Reutlinger, Walery, and Lumière, in France; Luckhardt and Adèle, in Austria; Bergamasco, Mietzokowsky, etc., in Russia. All these are well-known names, whilst there are still others from every country who have exhibited some excellent works. One is vainly searching for a new style or a shape. A surprise like that by A. Salomon, who made a furore in 1867, is not to be had, and even A. Salomon has not exhibited at all,

As real novelties in the portrait line, there are only two kinds to be mentioned. First, the Seavey background, which you know so well that I need not stop to explain them. Second, the portraits with electric light, by Van der Weyde, of London. Both were known before, but none of them have ever been exhibited before at a European exhibition.

As to the backgrounds, it is strange to observe that only one European (a Parisian stockdealer) has exhibited backgrounds, which are, however, so beyond all expectations dreadful, that one cannot help to be astonished at the fact that these things are possible in Paris, the centre of taste. Even a German country photographer would be ashamed to use such backgrounds. It is, therefore, not at all surprising to see but very seldom a painted background on a French photograph. Let us hope that the French, and other nations, too, will profit by Seavey's exhibit.

Van der Weyde's exhibit proves it to be a possibility to make equally good pictures by electric light and daylight. Since, through the Parisian Exhibition, vitality has been given to a new, interesting method of using electricity for illumination, it is to be expected that this light, which may be produced with a few horse-powers, will soon attract the attention, especially in the northern parts of Europe—Russia, Sweden, etc.—where there is sometimes only four or five hours daylight during the winter months. America, which is blessed with an abundance of daylight, will not have any occasion for the use of electric light for portrait work.

America has sent some real good work. Sarony, with his inexhaustible ingenuity, always brings something new in positions; Rocher occupies his space with pictures of finest finish; Landy brings his well known "Seven Ages of Man;" and Gutekunst his panoramic view of the Centennial Grounds of Philadelphia, and some very good cabinet pictures, which seem to have the background retouched in. Sarony exhibits crayons; Gubelman, of New Jersey, brings elegant cabinet pictures, smooth in the centre and grained toward the illuminated edges. He also exhibits nice pictures of

children. Gueria, of St. Louis, arranges men as marble statues. It shows too well that many men have a weak chest. Those make-up things do not look altogether nice. More lucky is Smith, of Chicago, who has sent a large number of pictures of children, which can compete with the best pictures of the kind. Under the frame is printed: "We came all the way from Chicago."

The large views of the Centennial Exhibition exhibited by the Centennial Photographic Company, Edward L. Wilson proprietor, Philadelphia, are admirable, and far ahead of any pictures made of the Paris Exposition, both in quality and size, and they make one wish that the same Company had had the management of the Exposition photography here, and thus continue their fame. I see nothing in the line of exteriors and interiors of buildings to equal them, and certainly no World's Fair was ever so well photographed as the one at Philadelphia by the Centennial Photographic Company.

As you see, the representation of American photography is very moderate; many well-known names, as Kurtz, were not represented. So it is with Canada. Notman and Sandham occupy the first place with their well-known winter sceneries and cabinet pictures, a la Salomon. Laughlin, of Ottawa, exhibits views of architecture, which have a respectable finish. Henderson, of Montreal, has sent very nice landscapes, among which are some taken by the emulsion process. Gurney, of New York, has exhibited burnt-in enamel photographs, far much better than those exhibited in Phila-According to the number of delphia. French enamellers, it seems as if this kind of business were picking up; I counted not less than fourteen exhibitors, among which the oldest of all burnt-in photographers was Mons. Lafon de Camarsac, whose process is still a secret. He sends pictures of life size, which did not please me as well as the smaller ones. I consider those of Mons. Deroche as the best. These pictures guided me involuntarily to the French department, which may have the most interest for you, with the exception of the American department. I allow myself, therefore, to continue relating what I have seen from the French.

The French department is crowded with portraits, leaving hardly any room for the landscapes. Lumière and Victor, of Lyons, attract principally attention with pictures of the size of a whole sheet, though there is nothing new in regard to position or light. They occupy the corner of the main aisle, which is greatly to their advantage. nearly all the departments of the Exhibition the top-light is shut off by means of white screens, which are double along the sides of the rooms, where they shut off a great deal of daylight, and work very disadvantageously on photographs exhibited in that neighborhood. Wallery's frame, for instance, is at times half in the dark. He exhibits small pictures, which are better than those exhibited in Philadelphia. Reutlinger is represented with small and large pictures, all equally well. A special interest is excited by some large pictures of his, made by the carbon process. Nadar, who did not exhibit at the last two exhibitions, appears again with an excellent tableau of pictures, remarkable by their good light. brandt celebrates here his triumph. The effects of his pictures are multiplied by the well chosen positions. However, they smack a little too much of the "demi-monde."

As it is not necessary to mention every one of the French photographers, I confine myself by saying that the average of the work exhibited is very good, though there is nothing new; on the contrary, the general impression is rather fatiguing, as there is too much of the same kind without variety.

The lightning process, which excites nearly the whole of America, is scarcely represented. The best occasion to study it was with Mr. Klary, the apostle for this process. He offered me at once to make some experiments, to which I might sit as model. The skylight, covered with groundglass, was open; only one screen shut off a part of the top-light; the day was clear. Several experiments were made, and it was found that those with five seconds exposure for card size and eight seconds for cabinet size were the best. Both were made with a Dallmeyer three B lens, of twenty-four centimetres focus, and three seconds opening. The plates were sensitized by Klary himself, for an unusual length of time, and on

developing the picture appeared a little hard and intense. Klary told me that his collodion was rich of bromide salts, which would explain the long sensitizing. He added then, that his chemicals were not in their highest state of sensitiveness. In connection with the above, I would like to say that there is in Paris still another instantaneous photographer, Mons. Chambay, who stops in the Grand Hotel. His exhibit is composed of a number of pictures of babies, among which are groups of four to six of them. The unexpected sharpness of every one of the babies speaks for itself. There is no other explanation for the probability of making such pictures than the short exposure. Mons. Chambay keeps his inventions secret, and has even declined the highest offers made for the sale of his method. A third one among the lightning men is Mr. Richard, in Switzerland, who, following the example of Boisonnas, offers his process for sale. I do not doubt that after a short time there will be still some more similar processes in the market.

The carbon printing process has found in France quite a number of admirers. Liebert, formerly in America, works exclusively with this process. Reutlinger has exhibited a large carbon print. Rousseau, Provost, Cavett, Frank, Fabre, etc., exhibit carbon pictures; some of them are in life size, and very good. Braun, of Dornach, is ahead of all. His branch house, in Paris, is the former firm of Meyer & Pierson, who made principally painted carbon portraits. Those exhibited by Braun are slightly painted on the back before the second transferring. In some of them only flesh and hair are painted. The effect is generally very good, but sometimes a little cold, that may be attributed to a little gray tone of the carbon paper. I remember that Ott had sent to the Philadelphia Exhibition some small pictures of the same kind. They arrived there in the month of June. Braun has been lucky to take the oldest of the crowned heads of Europe: the Emperor William I, and also Pope Pius IX and Leo XIII. The two latter parade on the Exhibition in life size, the Emperor not.

Braun's masterpiece is a picture two metres (4'7") high, representing the Medzäro

Grave, of Florence. Alongside of them are some other very interesting reproductions, all made in Dornach, now belonging to Germany; and I am curious to know if this work can be put in competition for the award. The result of the work of the judges is not known yet. Mons. Gambetta, te vrais representant de la republique (the real representative of the republic), as the French call him, was the cause of the delay of the distribution of the awards until after the corps legislatif has gathered.

If the portraits are amply represented, the landscapes, on the contrary, are very much neglected in the French department. There is one thing certain: nobody has ever done better landscape work than the English. Among the French exhibitors, Lamy is the best; then follows Thiers, of Fontainbleau, with dry-plate emulsion plates. More neglected than the landscape is the architect-Anybody having seen the excellent architectural work which Baldin, Ferrier, and Saulier exhibited ten years ago, will be surprised, when seeing in the work of a photographer, des ponts et chaussees (of bridges and turnpikes), the vertical lines merely converge with the edges of the pic-

Lichtdruck seems to have found not many admirers in France. They have not even a term for it, as they call it simply "photolithography," though lichtdruck and photolithography are two different things altogether.

When Poitevin, with his gelatin and chromate solution on a stone, exposed, under a negative, developed, inked-in, etc., he attributed a great deal of his success to the operation of the stone. Later the stone was replaced by a zinc plate; but he knew not that the gelatin film by itself has all the printing qualities. Tessié du Mothay was the first who proved this with certainty, and was recompensed for it with a gold medal at the Exhibition of Paris in 1867. By that time the French knew very well the difference between photo-lithography and phototypy, as Tessié named his process; now they have forgotten all this, after Albert has given vitality to Tessié's method. "C'est le procede Poitevin" (that is the process of Poitevin), was the reply when I spoke of Albertypy, not knowing Tessié's, the Frenchman's, merits. I found only five or six exhibitors of Lichtdruck, Berthaud, with architectures, among the rest.

The Woodbury process is amply represented by Goupil, Vidal, etc. It is owing to Goupil's success that the Woodbury process has found so many admirers in France. He exhibits here equally as well as in America. The Woodbury prints form the frame of his magnificent tableau, and in the centre are photo-engravings, as sole novelty. I saw two colored pictures in which the colors seem to be put on by inking in of the printing plate.

If Goupil has made any progress, it is principally due to the chief of his establishment, Mons. Rousselon, who has at his disposition the immense means of the house, which enable him to make the experiments, which a poor devil of an inventor generally cannot make. Goupil's establishment, in Asnières, is magnificent indeed; one hundred and thirty workmen are constantly working in one great room with a skylight on the top. A gallery is established in the same for the purpose of mounting the pictures. For printing, they have eleven large copper-plate printing presses and six tables for the Woodbury presses. Every workman is able to make two hundred prints daily on either machine; 20 x 60 centimetres large for Woodbury prints, 60 x 85 centimetres for photo-lithographs. The well-known method for the preparation of the Woodbury printing-plate by means of his gelatin film requires one million pounds of hydraulic pressure. For plates larger than, 20 x 60 centimetres this pressure is insufficient; that is the reason they use then the photo-lithographic process where the plates are made by means of galvanoplastic.

Goupil's principal occupation is the reproduction of paintings, which are taken in the open air. Only in bad weather a skylight is used, which is glassed all around.

Rousselon told me that he does not retouch his negatives, and also showed me some negatives which got, indeed, no retouching whatever; but I saw, also, many negatives which were considerably retouched. This is, however, without any consequence, as it is certain that all his

work is very good. Rousselon told me, also, that he overcomes the injurious effects of the different colors by the different proportions of bromine salts and iodine salts in his collodion; also, by making several trials with different exposures. I give you this apparently doubtful assertion, as it has been given to me, with all reserve.

Next to Goupil is the Societe anonyme des publications, periodiques, photographique, et photochromique, which attracts most attention. This establishment is managed by Vidal, and manufactures principally colored pictures. The same firm exhibited also in Philadelphia, where its success was not altogether decided, especially in regard to the portrait work. Their principal occupation is now reproduction of articles of art and industry, and I must say it is a success.

Reproduction of gold and silver signs are really so well done that one should think they were made of metal. Other pictures, in four colors, are an equal success. The same establishment makes also Woodbury prints and lichtdrucks.

The English method for the manufacture of colored pictures is more direct and simple. The photographs are simply painted over; then it seems to be a success, according to what I saw at the South Kensington Museum exhibited. Since I stopped so long with the colored pictures, I dare not forget to mention the photographs in natural colors, by Ducos du Hauron. He has a competitor, Mons. Cros, unknown to me until now, whose process does not differ from that of Ducos du Hauron as far as the optical part is concerned. In contemplating their pictures, I must say that I was greatly surprised, in comparing them with Albert's and Obernetter's work, who are far ahead of Ducos du Hauron. Landscapes after nature are principally inferior. Better are his reproductions of oil paintings. In my next letter I propose to write about the French heliographs, and also about the photographs of other nations. Truly yours,

H. VOGEL.

Paris, September 26th, 1878.

Dr. NICOL seems to think that as a rule photographers exhibit too many specimens.

#### FRENCH CORRESPONDENCE.

The Exposition — Landy's "Seven Ages"— The Albumen Process for Transparencies.

THE magnificent Exhibition of this city is now rapidly drawing to its close. Its value, for the advancement of science and art, is incalculable; the lessons which it has inculcated will not be lost. Photography has been very well represented, and a marked progress over former exhibitions can be at once seen, even by a casual visit. Men of mark have sent their chef d'ouvre, and others will not be backward, I am certain, to imitate what they find good and artistic in others following the same branch. As a proof of this, Mr. Payne Jennings had the idea to allow his gelatinized proofs in optical contact with the glass; this gave the proofs such a depth of shade, detail, and brilliancy as was unusual, and in consequence attracted great attention. This dodge is now becoming a la mode in Paris.

Another great lesson, which can be learned in the Exhibition, is to make a pleasing picture of a photographic proof. I can cite, among others, "The Seven Ages" of your friend, Mr. J. Landy, of Cincinnati, Ohio, which proofs are indeed worthy to adorn any gentleman's house. Artistic taste in the photographer is here displayed in the right way. I would say to him, continue in the same style, for every proof made, and revolutionize the photographic art; make, in fact, a picture of every negative, and I will predict for you an immense fortune for yourself and the honor of having transformed the photography proof from an insignificant portrait, which could hardly excite interest, into an artistic picture sought after and admired by all. I am happy to say that some English photographers are following in this same road to fame. If American and English artists are superior to the French, by the progress they have made, in these new and instructive pictures, the latter hold fast their superiority in stereoscopic views upon glass. Those of Messrs. Ferrier & Soulier are gems, and were I to state that they are obtained by one of the most old-fashioned processes, I should be hardly credited; but so it is. They are obtained by the albumen process, which, having been worked for

years and years, have been got into such a state of perfection that transparencies upon collodion cannot match them in any way. The film is so fine that even in the deepest shadows there is a transparency, and, as it were, detail, which would have been blocked out or lost in a collodion film; not to speak of the rich tone which can be given to an albumen positive with very little pains. All these advantages ought to make photographers strive to bring the albumen process to the same amount of perfection as other processes, but such is not the case. Every manipulator knows that although in theory this process is simple in the extreme, in practice it is the most difficult, and few in the profession would have time, if they had the courage, to vanquish these difficulties.

I will now state that these difficulties, in my estimation, are overrated, and that I firmly believe that albumenized plates can be prepared with ease and without the least fear of failure. For the advantage of the readers of the Philadelphia Photographer, who would like to make transparencies for the stereoscope or the lantern, I will give the formula for the preparation of albumen plates, which, although not so rapid as collodion ones, will give a proof so superior to the other that as soon as the difficulty of manipulation is vanquished, the operator will be so enchanted that he will discard all other processes for this one. I will now treat the subject fully, and in the following order:

1st. The dark-room.

2d. Preparation of albumen.

3d. Cleaning and polishing the plate.

4th. Coating the plates with albumen and drying.

5th. Sensitizing.

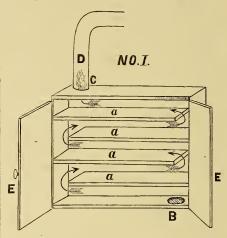
6th. Exposure and developing.

7th. Toning.

The first subject requires the most care. The dark-room must be very small, the ceiling and the walls painted in oil, the floor laid with marble or slate slabs, a large sheet of plate-glass fixed to serve as a table, a kind of cupboard with levelled glass shelves, and as few chemicals as possible. This is what the dark-room must contain in order to prepare albumenized plates with any degree of certainty. Dust is the greatest

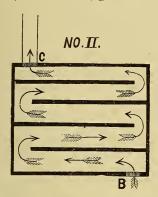
enemy of this admirable process, and it is the first to be vanquished, that is why I advise a small room. The walls, ceiling, and floor are so arranged that they can be washed now and then, to take off the dust. The drying cupboard is made of varnished zine, as in Diagram I.

a, plate-glass shelves the same width as the cupboard, but an inch and a half shorter;



the first shelf touches the zinc on the righthand side; the second shelf touches the zinc cupboard on the left-hand side, and so on, alternately, to the top of the cupboard. On the right-hand side of the bottom of the cupboard is a hole B, over which is soldered a piece of fine wire-gauze, covered with a piece of fine linen. This hole is an inlet for air, and the fine linen acts as a filter to stop dust and dirt from entering with the air. It would be well even to dip the linen into a little glycerin, and change it now and then. On the left-hand side of the top is another hole, which forms outlet C; this is covered by a piece of sheet-iron piping, in the interior of which is placed a Bunsen burner, D. The prepared plates having been laid upon the glass shelves, the doors E E are closed. The Bunsen burner lighted, a draught is established in the chimney, and fresh air is drawn through hole B, which, following the arrows, Diagram II, passes over the surface of all the plates and dries them very quickly; if the air be very damp it can be made to pass through chloride of calcium. In fact it can now be seen that to

succeed with this process great cleanliness is required, and above all, great care not to



open doors too rapidly, or go in and out of the dark-room too frequently, so as to raise the dust. I dwell very long upon this subject, being certain that this is one of the greatest stumbling-blocks in the process.

2d. Preparation of the albumen: Take 17 new-laid eggs (eggs a week old are the best), break them and carefully separate the yolks from the whites; take out the germs (treadles).

Weigh out 5 grammes of iodide of potassium, ½ gramme iodine, mix therewith 500 e.c. of albumen, then pour into a large basin and whisk into a froth; this is allowed to remain twenty-four hours in a cool place to settle down; the product is then filtered through a piece of clean linen, and is then ready for use.

3d. Cleaning of the glass: It can be easily understood that the first conditions to obtain a pure and perfect image is to cleanse the surface of the glass from all impurities. This is done by plunging, first of all, the glass in a strong solution of potash; it is then well washed and left for a few minutes in a tray containing water slightly acidulated with nitric acid; it is then well rinsed and wiped dry with linen towels. Take fine whiting, and with water make a thick paste, and wipe or spread it all over the glass and allow it to dry, then rub it all off with a piece of fine linen. A few grains of talc (I mean as much as would lie upon a pin's head) are now put upon the glass, and rubbed over it in every direction with a piece of wash-leather. A badger-brush is now drawn

over the surface, and the glass is ready for coating.

4th. Coating the plate is considered by all as the most difficult operation. This must be done in a room set apart for the express purpose, and free from dust. The best manner of operating is to take up, by a tube, the exact quantity of albumen required for each plate; breathe upon the glass, and let the albumen run out of the tube; take a clean glass rod and equalize it all over the surface, and then put it into the cupboard upon the levelled glass shelves, to dry in the manner as previously described. The plates thus prepared can be kept for years.

5th. Sensitizing is done in the same manner as with the collodion process. The bath is prepared as follows:

Distilled Water, . . . 100 ounces.

Nitrate of Silver, . . . 10 "
Glacial Acetic Acid, . . . 10 "

After the plate has remained about a minute, it is taken out of the bath and plunged into a tray containing distilled water; it is then thoroughly washed in ordinary water and then left to dry. After a time the silver-bath becomes tinted through the organic matter dissolved out of the plates. This color can be taken away by the addition to the bath of some chloride of silver or silicate of alumina (kaolin). This coloration does not exercise any bad effect, according to the opinion of several manipulators.

6th. Exposure and developing: If the plates are intended for stereoscopic transparencies, lantern slides, etc., the negative is put into a printing-frame, and the prepared glass upon it. It is then exposed to a diffused light for a few seconds, and then taken into the dark-room to be developed; naturally the camera can be employed for the same purpose. The development of these plates is long and tedious. A solution of gallic acid is made warm, and the plate plunged into it:

Distilled Water, . . 500 c.c.
Gallic Acid, . . . 8 grammes.
Acetate of Lime, . . 4 ...

The plate is left in this solution until the liquid becomes cold, a few drops of a solution of silver nitrate are added, and the image makes its appearance. More nitrate will intensify rapidly.

7th. Toning glass transparencies is necessary to give them the pleasant appearance they bear.

To have a beautiful purple color they are toned in a chloride of gold bath.

To procure a very agreeable sepia color, they are plunged into a weak solution of bichloride of mercury, and then, after washing, into a chloride of gold bath.

Fix in hypo, either before or after the toning.

The Exhibition will close on the 1st of November. On the 21st of October will be the most magnificent fête given in Paris, in honor of the distribution of prizes, which will be made in a most gorgeous, and at the same time, in a most solemn manner. To any of my readers who intend to visit Paris, I would say do so at that time, and wish them welcome.

PROF. E. STEBBING.

27 Rue des Apennins, Paris, October 6th, 1878.

### THE "ARTOTYPE."

THE above is the name given to "the last I sensation" in photography, by the selfcalled "Artotype Company," who profess to hold forth at 516 Broadway, New York, and who claim to be "organizing" a company to make pictures which they call artotypes. They want one hundred parties to take shares at \$325 each, for working the process, in Kings and Queens County, New York. Individual licenses are offered for \$500 each. All sorts of claims are set forth, which are as yet unproved. The results are pretty. We saw some a long time ago, in our German exchanges, and recognized them as soon as the examples from New York were shown to us.

They are no less than photo-mechanical prints by Obernetter's process, for which a patent was obtained in this country, September 17th, 1878; granted to J. B. Obernetter, of Munich, Bavaria, assignor to B. F. Powelson and Adolph Mueller, Detroit, Mich., and to W. A. Cooper and W. E. Lindop, St. Thomas, Canada, the last two named being of carbon fame.

Mr. Obernetter's process is given below, and our readers may judge of it as they desire. A good many kindred processes have

failed to make money for their sanguine owners in this country, and none of them have proven practical for portraiture, as the ordinary photographer has to dispense it, *i. e.*, in small quantities.

### "THE 'ARTOTYPE' PROCESS.

"The invention consists, essentially, of forming on a transparent or non-transparent photographic printing-plate a film by a solution of albumen and soluble glass, and coating this film, after it is perfectly dry, by a second or sensitive film, that receives the photographing image from the negative, in the usual manner.

The first solution, by which the glass or metal printing-plate is coated by means of a brush or otherwise, is formed of seven parts of albumen, three parts of soluble glass, and eight parts of water. The film obtained by this solution is then dried, either slowly by exposure to the air, or quickly by artificial heat, as desired. When the film is perfectly dry it is washed in running water for about five minutes, care, however, being taken that its surface is not touched. After washing, the plate is placed in a rack and allowed to dry. The dry plate is then placed into a heating-oven, and when heated to about 212° Fahrenheit, or nearly so, the second or sensitive film is laid on the first film. The sensitive solution is prepared by dissolving fifty grammes of gelatin, fifty grammes of fishglue, and fifteen grammes of bichromate of ammonia in one thousand grammes of water, and filtering it in a warm state through paper. As soon as this solution is uniformly distributed over the plate, the same is placed in the oven again for ten or fifteen minutes, until perfectly dry. The plate is then ready for the negative, and is exposed to the action of the light in the same manner as the common albumen paper, but only for about half the time, so as to receive the photographing image on the sensitive film. After the plate has thus been exposed to the light for the proper length of time, it is washed in running water for from fifteen to twenty minutes, until every particle of chrome-salt not affected by the light is washed out.

"After drying, the plate is ready for printing by the common lithographic inks and presses,"

### THE LIGHTNINGELISTS.

NOWING full well that the few copies of Anthony's Photographic Bulletin, which are sent out usually about "thirty days after date" to their "pet customers," do not reach many of our wide range of readers, we reprint from the number of the aforesaid Bulletin, "for September," the following:

### THE END OF THE HEATED TERM.

"We have no doubt that many of our readers, as well as ourselves, have become tired of the long controversy between Mr. Lambert and the editor of the Philadelphia Photographer. We should not have permitted the use of our columns in such a controversy unless we had felt that not only was Mr. Lambert unjustly assailed, but that we, through whom Mr. Lambert and his present business had been introduced to the photographers of the United States, had been, if not the open, the covert object of attack. That this must be the case up to the present time is evidenced by the fact that, although a number of other persons have introduced for sale materials for producing quick pictures, not only has Mr. Wilson not even alluded to them in any depreciatory manner, but has gone so far, in one instance, as to advertise the materials offered for sale by one person, and at the same time published in his letter-press puff's of them, while he never noticed the large number of testimonials as to the value of the Lightning Process spread before the public, but reserved his columns exclusively, as far as that process is concerned, for those who, whether rightly or wrongly, chose to operate against us.

"We have reason to believe that now, however, after his abject failure to perform what he so Quixotically promised, i.e., within a short time to publish and proclaim to the extent of his limited circulation the secrets of the Lightning Process, he will have sense enough to perceive the awkward position in which he has placed himself, and will reasonably conclude to subside.

"For our part, all discussion of the character alluded to must end, and Mr. Wilson may write diatribes, or what he considers

such, to the 'crack of doom,' if it him so please, without expecting our notice.

"E. & H. T. Anthony & Co."

We make this extract as a matter of sheer justice. When parties find out the error of their ways, and acknowledge it so handsomely as this, we are always glad to make a note of it.

There has not been, however, any "controversy between Mr. Lambert and the editor of the Philadelphia Photographer" that we are aware of. When Mr. Lambert first made his announcements in the Bulletin, of his "Lightning Process," etc., we acted, as we always do when we find sham and deceit, which we detest, and called attention to his circulars and advertisements in a way which our duty to our readers demanded. Since then we have admitted correspondence to our columns which did not please the celebrated lightningelist, and his backers at 591 Broadway, and thus we became the subject of personal abuse, in measure equal to about one page to one of our lines. For such abuse we never care, and we never replied to it. We would not say as much as this now but for the extract above, coming from gentlemen whom we personally respect, though we necessarily clash with them in business, and have always found them notoriously thin-skinned. They may as well understand now, if they never could comprehend it before, that we mean to take care of the interests of our readers, clash with whom it may, and they are entirely mistaken and flatter themselves in supposing that our action in this matter was governed by a desire to attack them.

We knew they would sicken of Mr. Lambert, and we could wait for their honest confession of it, given above. They have no subscribers, and therefore feared not to lose any, but we have some friends who buy goods of them, and they have chosen to be discreet for obvious reasons, although seemingly it always goes hard with them to refrain from publishing anything that is in the shape of an attack upon us.

We do not yet see our "awkward position." We have fulfilled every promise, by first giving Mr. Lambert's instructions to his licensees, and thus compelling him to

"throw it up" freely, and then we gave an analysis of his preparations. Moreover, we have given a process entire, that will do all his does and have plenty of power in reserve, such as an offer from Dr. W. J. Land, Atlanta, Ga., to make us "a complete quantitative and qualitative analysis of the Lambert lightning materials." For this service Dr. Land's usual charge would be fifty dollars. We do not feel that the benefit our readers would receive from such an analysis warrants us in spending such a sum, and although we had concluded to do it a month ago, the publication of the above "cry quits," in the Bulletin, and other circumstances, have changed our plans, and we shall from this issue "quit," provided no more sham or deceit is practiced upon the profession.

The sole cause of our "attack," so-called, was not upon Messrs. E. & H. T. Anthony & Co., and Mr. Lambert, co-lightningelists, because they sold certain and sundry materials the component parts of which they kept secret, as did and do all dealers, but because of their policy of refusing to sell them to any one who did not first submit to their exactions, for "permission to use" the said materials for a term of years so ingeniously fixed as to give the impression that a patent had been obtained. We called attention to other kindred materials, sold by other dealers, because their sale was open to all would-be purchasers.

Moreover, what we have said, and what we say now, has been "without expecting our notice" from the lightningelists, or even caring whether they noticed it or not. It was entirely for the good of our readers, and we can show plenty of letters of praise and thanks for our independent course in the matter.

We are very glad now of an opportunity to drop the subject.

SLOW vs. RAPID PLATES.—Our cotemporary of the British Journal of Photography, in concluding an able paper on this subject, says: "We must adhere strongly to the opinion previously expressed on this subject, that for the ordinary amateur and for ordinary purposes, 'slow' plates are much better calculated to give satisfaction."

### A "HOMESPUN" LIGHTNING PROCESS.

BY ISA BLACK.

COME time since I saw advertised some "special material" for the production of quick work, setting forth its wonderful quickness and merits generally. There was no intimation in the advertisement that it was a patent or secret process; or, rather, I should say, I had not seen that part of it, which appeared in another journal. Accordingly I sent an order to Messrs. Wilson, Hood & Co. for some "special material," and was not a little surprised on receiving a letter from Mr. Lambert in answer thereto, as follows:

June 20th, 1878.

DEAR SIR: Messrs. Anthony & Co. have just received word from Wilson, Hood & Co. that you ordered some materials for the lightning process. As I do not find your name on my list of parties holding permits, I could not allow the materials to be sent unless you tell me the number of your permit, date you bought, etc.

Yours truly, T. J. LAMBERT.

I was a little "taken back" at this, and made no reply to Mr. L.'s letter, but quietly determined not to pay the twenty dollars; and further, to do without lightning processes forever, if I did not have "gumption" enough to produce them myself; I therefore went to work, and, by the exercise of a little common sense (not to say brains), in my chemical combinations-not forgetting the many valuable hints I have gathered from the perusal of your journal—I am able, with my present method, to produce good pictures in even less than one second, which for my use is quick enough. Of course it cannot be that I am infringing on Mr. Lambert's patent, since it is only common sense I use, and do not know what his process is. He will, however, allow me respectfully to decline to pay tribute to him or any other man for processes; and I would say to the photographers throughout the country to read carefully your Philadelphia Photographer, do your own thinking, make your own chemical combinations, and save your money.

The following is my method of working, to which you are welcome:

### NITRATE BATH.

First put the amount of silver to be used into an evaporating-dish, and allow it to melt. Then (while it is in a fluid state) add to each ounce of silver about three grains of the following salt:

### " Bromo-iodide."

Iodide of Lithium, .	10	grains
Iodide of Ammonium,	30	44
Iodide of Cadmium, .	2	44
Bromide of Cadmium,	20	44
Bromide of Potassium.	10	46

Put the above into distilled water, in a clean evaporating-dish, and evaporate to dryness; add while the silver is hot. Then let cool. Dissolve the silver in distilled water, forty grains to the ounce, and sun very little. If any nitric acid should be used it should be C. P.

### Collodion.

The amount of bromo-iodide mentioned is sufficient for twelve ounces of collodion. Dissolve in alcohol and ether, equal parts in winter, but in summer there should be a little more of ether used. Cotton to suit your taste, say five grains to the ounce.

### DEVELOPER.

Dissolve in 65 ounces of water 40 ounces of protosulphate of iron. When all is dissolved, filter clear into a clean bottle. To use, pour out 16 ounces; add 1½ ounces of acetic acid and ½ ounce of alcohol. Any one trying the above formulæ, if they are at all careful, will find it will give good results. Should negatives lack intensity they can be strengthened after fixing, and washing well with the following: Pyrogallic acid, 1½ grains; citric acid 1 grain; water, 1 ounce. The collodion should be filtered after adding the bromo-iodide through filter-paper, and also after adding the cotton. Use a collodion filter.

THOMAS GRUBB, Esq., the eminent optician, died at his home in Dublin, Ireland, September 19th, aged seventy-eight years. As author and optician he performed much good service for photography.

### OUR PICTURE.

As the seasons change, so nowadays do the fashions in photography change, and soon photographers will be applying to Mr. Seavey for winter backgrounds and winter accessories. Snow pictures are very pretty when well managed and carefully made. One of the most pleasing and natural of this class we have seen for some time came to us in our last prize series from Mr. Cook Ely, Oshkosh, Wis., and we determined when the proper time came to present it to our readers as a worthy study for them. We do so now, and must compliment Mr. Ely on so successful a picture.

The great fault in such pictures usually is their want of harmony and naturalness, and in making the "snow." But in these respects our picture is unusually free from it. The pose is natural and free, and all the accessories harmonize. You have had much instruction in the matter of posing. Practice what you know.

In making the snow-storm, Gihon's Opaque is an excellent article to use, diluted with water. In the fluid dip a paint-brush and have your assistant gently knock it over a stick, and dexterously catch the falling spray, holding the negative in proper position to have the snow fall naturally. The little article used for scattering perfume into spray may be also used, but we like the brush best if care is taken not to have the color too thick, and to get it properly directed.

In this picture the little subject has done much to help the photographer. Her expression is capital, as "The Little Faggotgatherer." Once, doubtless, she was in better circumstances, when she could sing,

"I had life, like flowers and bees,
In betwixt the country trees,
And the sun the pleasure taught me
Which he teacheth everything."

Now, alas! her fortunes have changed for the worse, and

"If the snow fell there was sorrow,
Little head leant on the pane,
Little finger drawing down it
The long, trailing drops upon it,
And the snow, snow come to-morrow,"

Said for charm against the snow, for when

the cold and the snow cometh she must find the wherewithal to keep warm. And now we find her returning with her scanty freight

"From where the forest opens northward
Between its brist'ling, shiv'ring pines,
As through a door, the cold wind climbs.
The jewels loosen on the branches,
And swiftly as the cold winds blow
Fall, tinkling on the ice below."

But she sees some beautiful sights as well, and always bright and cheerful we imagine we can hear her sing with Bryant:

"Here delicate snow-stars, out of the cloud.

Come floating downward in airy play,

Like spangles dropped from the glistening

crowd

That whiten by night the milky-way; There broader and burlier masses fall; The sullen water buries them all—

Flake after flake—
All drowned in the dark and silent lake.

"And some, as on tender wings they glide From their chilly birth-cloud, dim and gray, Are joined in their fall, and, side by side, Come clinging along their unsteady way; As friend with friend, or husband with wife, Makes hand in hand the passage of life,

Each mated flake Soon sinks in the dark and silent lake."

The prints were made on Trapp & Munch paper, from Mr. Willy Wallach, New York, at our own rooms. This paper works excellently in our hands and is an old favorite among photographers.

### CARBON IN FRANCE, 1878.

A YEAR or two ago I wrote a rather cheerful article for your columns, on the carbon picture and the inducements. The gun kicked slightly, for we lost some customers here; and one in Texas wrote that he could not pay his bill, as I had spoiled the sale of carbon in the territory he owned. At the risk of an explosion, I refer to the subject again, to report what I have heard of the progress of this beautiful, eternal picture in the wilds of France. In a short chat with Van Loo, the other day (everybody knows him, and more ought to. Ask Lambert to see if he can find the name on his roll), knowing he had just returned

from the "Universelle Exposition," I asked him if they were doing anything with carbon in Paris. He told me that he believed no one was using it for portraiture; that Wallery, the leading artist there, supposing the picture would be wanted, had fitted up a room and hired an experienced operator, and kept him at work six months to see if he could rely upon it for his daily business. He found such irregularity in the prints, and uncertainty in getting them out, that he discharged his operator, gave up all hope of success, and has continued the use of silver. He tells me, also, that A. Braun, of Dornach (whom Lambert may have mentioned once or twice), has a portrait gallery in Paris, and uses silver exclusively; and yet we find photographers in small villages buying the inestimable right to make the carbon picture, and for a short time blowing about its beauty and durability (that always comes in), and claiming that they have no difficulty in making it, etc.; but in a short time there is ominous silence on carbon in that village (as when a boy has eaten a green apple), and only a sigh is heard for what "might have been."

By the way, you know I talked about investing in carbon rights as a speculation, before they got up too high. Would you believe it, the thing instead of going up is going down! I was led to believe that by this time they would be worth \$300 to \$500 each; instead of that, I hear they are selling at from \$25 down to a country hotelbill. Is it possible that, like a meteor, it is hastening to a vanishing point?

Should Lambert disappear, what an aching void will be felt in the stomachs of two great photographic journals! Where else can they find such juicy, nutritious matter for their readers as flows from his pen and—pocket? He has carboned and lightened and thundered (in the aforesaid journals). What can he do next to keep up the sensation? Take my advice, Lammy—slide!!!

Yours, W. D. GATCHEL. CINCINNATI, October 12th, 1878.

Don't fail to secure a copy of Hearn's Practical Printer, second edition, \$2.50. No photographer should be without it.

### PHOTOGRAPHIC NEWS.

PRUSSIA has had all her criminals whom she can catch photographed, and their portraits arranged in albums, which latter she wants to exchange with other countries. We hope she will be encouraged in this effort.

PROF. FISCHER, of the Prague gymnasium, met a sad death recently from cyanide poison. He thought he had discovered a method of rendering it harmless, but alas! his first effort to prove his theory resulted in his death.

Dr. Schnauss, the eminent German chemist, is of the opinion that "of all the silver soaked up by a piece of albumen paper, only three per cent. remains in the finished picture. One per cent. is wasted in the process of silvering, and drops off; fifty to fifty-five per cent. goes to waste in the washwater; thirty to thirty-five per cent. are left in the fixing-bath in the form of chloride of silver, and five per cent. is gathered by the final wash-water." The learned Doctor promises us some more interesting notes on silver in the near future.

REMARKABLE PICTURE. -- London amusements are mild enough just now. I find the great attraction is a large photograph in the window of the Berlin Photographic Company, newly opened in Oxford Street, near the Circus. It is the photograph of a picture by Gabriel Max-a head of Christ. At first view it seems to be dead, and the eyes are shut. As we continue looking, the eyes of a sudden seem to be open, and to be gazing intently at some point above and behind us. The street boys go in crowds to look at it; and if any man or woman should be there, giving a passing glance at this extraordinary head, they detain him or her with an air of superior knowledge, and say, "If you look long enough the eyes will open." This effect is perfect in the large size photographs, which are naturally placed high enough to compel the eye to accept the delusion. If, on the other hand, we look at the smaller photographs, sold for a shilling, the effect is not so certain; and there are gazers who cannot see that their eyes are closed. As a rule, the difference may be observed in this way: If we begin by looking at the chin, and then gradually looking upward, we shall see the eyes shut and the whole head corpselike; but if we begin from the highest point and travel downwards, we shall see the eyes open and the head illuminated. The strange weird picture from which these photographs are taken was in the French Gallery during the past season, and is now, I understand, being exhibited in the provinces.—London Correspondent.

The Wochenblatt says that the adulteration of nitrate of silver has been practiced in Germany by being mixed with ten per cent. of nitrate of potassium, but it is supposed that it has been brought in the market by mistake, as ten per cent. of nitrate of potassium is always added for medical purposes, in order to give to the nitrate of silver more solidity.

A CONVENIENT method for ascertaining when prints are thoroughly washed has been, up to the present time, a desideratum. Our journals publish one which rests upon the action of iodized water on starch. We may say it is of easy execution, and certain. We want to know if all the hyposulphite is eliminated from the prints. Take one of these prints, and cut it into small pieces, which are to be boiled in a little distilled water; the liquid is then filtered, and again boiled for a few seconds with starch. On the other hand, take a solution of iodine in water, which is obtained by rubbing iodine under cold water in a mortar. This solution is placed in a test-tube having a faucet, which can give it out drop by drop. The solution of iodine is allowed to fall drop by drop in that containing the starch coming from the ebullition of the print, and perfectly cold. If all the hyposulphite had been removed, the first drop of the iodized solution will yield an iodide of starch of a dark blue. If it requires several drops to obtain this result, we may be sure that some hyposulphite still remains in the prints.—Dr. Phipson.

IMPROVED points for the electric light have been submitted by M: Regnier to the Société d'Encouragement, Paris. The points are covered with a thin layer of nickel, and this is said to preserve and concentrate the electric action at the points.

### Editor's Table.

GIHON'S COLORISTS' GITDE.—Of this excellent book the *British Journal* says: "The work is written in a pleasing style, and contains much useful information. For these reasons it is certain to find much favor among photographers." Price \$1.50; one-third of which is for the family of the deceased author.

PICTURES RECEIVED .- Mr. WELL G. SINGHI, Binghamton, N. Y., is a man who delights to make pleasant surprises to his friends. He has just practiced on us by sending us a number of fine examples of photography of various sizes and excellent quality. There is no evidence of "hard times" here. Mr. Singhi is prosperous, and he continues to receive the Philadelphia Photographer regularly. One of the best things Mr. Singhi sends is a portrait of a stout fellow who is seemingly trying to see if biting his own finger would hurt anybody. His closed eyes and contorted face, with the expression of the other hand spread out upon his stomach, makes one inclined to think that the experiment is a success, and wonder why the fellow is not enough satisfied that he can sing high and let go. Another, a portrait of a "drum-major," is a capital thing.

Mr. Charles A. Smith, Newton, N. J., sends us a capital photograph of Theo. Morford's setter dog "May." It is "still to a hair," and the pose capital.

From Mr. C. Weitffe, Central City, Col., we have some excellent stereographs of the Clear Creek Canon and Green Lake, which are superb views, and examples of splendid photography. Such wild pictures have a peculiar charm for us.

Mr. E. D. Ormsby, Oakland, Cal., sends us some remarkable pictures of children, made by his own process, and referred to in "Voices from the Craft." We hope to have the process entire for Mosaics, 1879. Mr. Ormsby says, in a letter just received, "If 'lightning,' or any other process, can work quicker than Mr. Henderson's, they will have to invent a new style of baby to be able to dodge it, and a mighty quick man to work it."

CLARK, Pittsfield, Mass., also favors us with some cute pictures of children, which show him to be talented in this difficult line of our art.

Mr. Isa Black, Franklin, Pa., favors us with some more excellent pictures of young ladies. Mr. Black gives us his process on another page. News of the Day,—On the 11th inst., the long-contested suit of "Wing cs. Anthony (i.e., Wing's Camera-box Patent owners against Anthony & Co. and the trade generally), was decided in New York in favor of the defendants. Another triumph.

Mr. M. H. Albee, Marlboro', Mass., awoke one morning lately, and found his local paper had devoted almost half a column to his praise, and no doubt he deserved such a surprise.

Messrs. Jones, Robertson & Calverly, of San Francisco, received a similar attention recently, the immediate cause of such distinction being the fine display of their work which is now to be seen at the "Mechanics' Fair" in that live city. These parties were nine years with Bradley & Rulofson, and have a fine studio. Success to them.

The Boston Photographic Association met October 2d. We wish there was Ioomis-nousness about it to let us hear of their proceedings withont heing so so-low about it. May we not?

Mr. J. H. Kirk, 1005 Main Street, Wheeling, W. Va., has also had a kindly editorial visitation, the result of which was almost a column devoted to him. He is the favorite stockdealer in that direction; keeps everything you can want.

Messrs. Lyon & ALEXANDER have opened a stock-house in Toronto, Canada, and have succeeded Mr. E. J. Palmer, with whom Mr. Lyon served sixteen years. The young firm is well known, and we bespeak a good business for them.

Messrs. Hunter & Co., Toronto, have purchased the entire business of Messrs. C. J. Cobban & Co., and removed it to their new quarters, 39 and 41 King Street, West, where with their new goods already purchased, they are ready to serve the trade promptly with the best. We also wish them great success.

At the Chicago Art Exposition one hundred and twenty-one handsome photographs are shown, and from the printed catalogue we learn that Messrs. Greene, Peabody, Rocher, Copelin, Mosher, Hughes, Douglass, Brand, Hesler, Furlong, Gehrig, and Gleason, are the enterprising ones.

At the Exhibition of the Maryland Institute, Baltimore, the honors are divided among Messrs. Busey, Weaver, Cox, Kuhn & Cummins, Holyland, Shorey, Chase, Walzl, Hewitt & BowERMAN, BACHRACH & BRO., MUELLER, BERSCH, and Solar Printing Co., of Baltimore, and EDWARD L. WILSON, Philadelphia, Magic Lantern Slides.

Mr. HEARN'S Practical Printer is out; handsome and good. \$2.50, by mail, post paid.

TESTIMONIALS.—Some of our patrons cannot wait until January to send us their subscription-money and *good words*. The former we need to keep; the latter we share partly with our friends as follows:

Messrs. Carpenter & Hall say: "The large amount of excellent matter in your October issue induces us to subscribe for 1879."

Mr. C. W. Tallman says: "Even if my subscription expires, you need not think I am without the journal, as I can buy it of my stock-dealer. I consider it a too valuable medium for any enterprising photographer to be without."

Mr. J. S. Mason, Medina, O., says: "I had been trying to think I could not afford your journal, but I am determined to have it whether I can afford it or not." Mr. Mason will get along. Neither he nor any other photographer can "do" without this magazine unless they lose money.

ONE THING astonishes us, and that is the marvellous background business which L. W. Seaver is doing at home and abroad, notwithstanding "dull times." Doubtless excellent work is the secret of it, and he tempts his customers so by means of it, that they cannot resist it. Such growth is always healthy, and Mr. Seavey sets us all a good example. He understands advertising, too. Do not fail to read what he says each month.

Mr. W. T. Brooks, whom we believe to be worthy, has had his business all broken up, first by fire, and then the yellow fever scourge. He calls for help. Send him one of your spare boxes or tubes or camera-stands or burnishers, and help him to a start again. He is at present a refugee from the fever, and may be addressed at Sarepta, Calhoun County, Miss. His home is at Water Valley. Help him all you can.

MR. H. C. BRIDLE, one of the best printers in America, has opened an establishment for printing for the trade at No. 116 North Seventh Street, Philadelphia. He also has a fine skylight where he can do all sorts of copying, making negatives, and coloring also for the trade. We can promise that any who patronize him will have faithful attention and good work. Send for his terms.

HEARN'S PRACTICAL PRINTER, Edition II, is ready; \$2.50. Contains a "panel" study by G. M. Elton, and many new things.

Our Advertisements should be read by our subscribers. They show healthy indications of good fall trade, and we believe it is coming. Do not fail to subscribe for the *Philadelphia Photographer* for 1879, and keep posted, and remain cheerful, and we shall all see good days yet. See page 3 of our cover.

AMERICAN GOODS IN EUROPE. The Scovill Manufacturing Company.—A few days ago the London Times printed a long account of the mechanical and industrial display made by the United States at the Paris Exposition, and in an editorial it said: "The pre-eminence of the mechanical genius of the citizens of the United States may be admitted, and is illustrated, not for the first time, in the Exhibition at Paris." And in the last number of the Contemporary Review, the Right Hon. W. E. GLADSTONE argues from the postulate that as American goods of many kinds have obtained a firm foothold in the very places from which we were wont to draw our own supplies, so in like manner the sceptre of commercial supremacy will pass from England to America in all the markets of the world.

One of the most striking instances of how these things are working, is in the case of the famous Scovill Manufacturing Company, of Connecticut, who send their goods into Birmingham, in England, the very headquarters of the manufacture of the same goods, and the American goods actually out-sell the English on their own ground. The Company we have mentioned constitute one of the greatest and most influential industrial organizations we have amongst us, the capital invested in the business being no less than \$1,000,000, while about 400 hands are employed. The works are at Waterbury, Conn.. and have a frontage on Mill Street of 800 feet, and the main building is three stories high. No less than \$100,000 have been spent on improving the water system within the last few years. The machinery and the different mechanical appliances are known to be the most perfect in existence. As a natural consequence the productions of the Scovill Manufacturing Company mak far above those of all other houses in this line of business, and are sold all over the civilized world, as well as being used to an enormous extent at home. It seems scarcely necessary to refer to the productions of this concern in detail, they are so well known, but we may briefly allude to a few of them.

An important branch is the button-making department, to which an immense building is devoted. A specialty is made of naval and military buttons, large quantities being made for the United States, the Cuban and the Spanish governments for their troops. Another department is devoted to making brass butts and hinges, the machines for making which work automatically, and were invented by mechanics in the Company's employ. The department, however, which is regarded as of the most importance, and in which the greatest proportion of the capital is sunk, is the rolling mill, which alone covers 200 by 125 feet of ground. Adjoining this mill is a casting shop, which covers 75 by 100 feet of ground, in which various articles pertaining to - photography are manufactured, including the camera obscura or camera-box, with its various styles of holders and dark slides, and stands for gallery and field photographic apparatus. The principal factory of the Company is that of the American Optical Company, which is the largest in the world. The Scovill Manufacturing Company also own the extensive factory of the wellknown Samuel Peck & Co., at New Haven, Conn. The Company are sole agents for the sale of the Phenix Plate Company's ferrotype plates, on which the portraits of that name are produced. At the Company's warehouses, at 419 and 421 Broome Street, New York, which covers 50 by 109 feet of ground, and is five stories high, specimens may be seen of all their productions, and the testimony of all practical men is that they cannot be excelled .- New York Trade Journal.

Scovill Manufacturing Company are also agents for the celebrated "Cross-swords" brand of Dresden paper. A new lot just in. We have to thank them too for some splendid pictures of animals, made instantaneously on Newton's Emulsion Plates. The sheep are specially fine. Do they use a "woolly" cotton? We understand it is HANCE's, specially prepared.

MR. CHARLES WALDACK, so well known as author of Waldack's Treatise, will be a member of our contributing staff in 1879, and promises a series of excellent papers, the result of his late practice and observations abroad. We have many other good things in store. See announcement circular next month.

Photographic Mosaics, 1879, is under way, and will be grand. We invite everybody who has anything practical to say to contribute to its pages. We desire to receive all matter for it by November 15th,

HEARN'S PRACTICAL PRINTER .- After many delays, we are at last able to announce that the second edition of this excellent manual of instruction for the photographic printer is ready. It has been almost three-fourths rewritten by the author; he has expunged all stale and useless matter, and added several very important chapters, which together bring it up to the latest improvements in silver printing. Good as the work was before, we are sure it is much better now, and that it will find as ready an acceptance as its predecessor. The embellishment is an exquisite "panel" photograph-amodel of silver printing, too-from negatives by G. M. Elton, made specially for this book. The chapters on "fancy printing" and glace printing are alone well worth the price of the book. The binding, printing, and get-up generally are the best we could produce.

"Honor to whom Honor" was a surprise. We have received a notice from the Berlin Society for the Advancement of Photography that we have been elected an Honorary Member of that august body, accompanied by a handsome certificate of membership. We gratefully acknowledge this. It does much towards counteracting editorial trials. Our work also secured us a silver medal at the Paris Exhibition.

THE ZOOLOGICAL GARDEN, PHILADELPHIA, is the title given to a new form of souvenir issued by the publisher of this magazine, and consists of twelve photolithographs or heliotypes of the views and animals in our "Zoo" garden, with eight pages of reading matter concerning them as follows: 1. The Entrance Gate, Girard Avenue. 2. The Monkey House. 3. "Solitude." 4. The Prairie Dog Village. 5. The African Lion and Lioness. 6. The Leopard "Commodore Lawrence." 7. The African Elephant. 8. The Indian Rhinoceros "Pete." 9. The African Giraffe. 10. The Bactrian Camel and Young. 11. The Red Kangaroo. 12. "Adam" Chimpanzee. The animals are specially fine specimens; and the whole is bound in a cloth gilt cover, and is very handsome-a decided improvement on the old style of souvenir, and a much greater credit to our art. We would suggest that photographers who are located in large cities and watering-places, could do well in getting out just such collections. We will be glad to give particulars to such, and to mail a copy of The "Zoo" to any address on receipt of 75 cents.

### Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\*ED\*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

For Sale.—A first-class photograph establishment located in the best part of Arch Street, Philadelphia, and established over ten years. Everything in best order; fine north skylight; 17,000 fine negatives, and splendidly furnished throughout. Satisfactory reasons for selling. For particulars address

F. W. G.

Care Philadelphia Photographer.

# See Seavey's Advertisement, page 332 of October number, and page 364 of this number.

Wanted.—A strictly first-class operator, one who can pose and light artistically; permanent position to the right party; none need apply who are not fully competent in both dark-room and skylight. Send samples of work and photograph of self, with terms, etc., to

John V. Stout, Easton, Pa.

# Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

For Sale.—One of the best located and finely furnished galleries on Broadway, New York, complete in all its appointments.

Apply to

W. R. LEACHE, 591 Broadway, N. Y.

# See Seavey's Advertisement, page 832 of October number, and page 364 of this number.

Wanted to Rent, a furnished gallery doing a good business. Would work on salary if preferred. Work first class. References given and required. Address Photographer,

Lock Box 527, Mankato, Minn.

For Sale.—A capital chance for a photographer wishing to go into business for himself. I will sell my photograph room, now doing a good business, for \$550; cost to fit up one year ago, \$1000; \$350 down, balance on time; in a thriving town of 10,000 inhabiants, and no competition.

Address

George T. Rand, Weymouth, Mass.

### Hance's Photographic Specialties. See Advertisement.

Wanter.—For South America, a first-class artist in crayon and water colors. A thoroughly competent man will receive a good salary, and find a permanent situation. The best of reference required. Address Crayon,

493 Washington St., Boston, Mass.

# See Seavey's Advertisement, page 332 of October number, and page 364 of this number.

Wanted.—An operator with a steady hand, to flow emulsion on dry plates. Address

A. LEVY, 77 University Place, N. Y.

# See Seavey's Advertisement, page 332 of October number, and page 364 of this number.

BURNISHER FOR SALE.—30 inch. A splendid machine; Entrekin's make, and for use as good as new. The only one ever made. Guaranteed to work perfectly. It can be seen and tried if desired. For terms, apply to "G,"

Care Philadelphia Photographer,
Philadelphia.

HALL'S Transparent Crystal, Granite and Negative VARNISHES. Sold by all Dealers.

2

### THE WONDERFUL EURYSCOPE.

PHILADELPHIA, Sept. 3d, 1878.

Messrs. Benj. French & Co.:

GENTS .- The Euryscope Lenses sent us for trial we consider to be a whole team in themselves; in fact we think it would be possible to run a gallery with only the Euryscope to work with, and do outside as well as in-door work, with the very best results. For our particular branch of business, we consider them the greatest lenses we have got hold of so far. For quick working and light, we consider them Ne plus ultra; in fact we cannot say enough. We are satisfied that a trial will insure their sale wherever they are introduced. Very truly yours,

R. Newell & Son.

### See Seavey's Advertisement, page 332 of October number, and page 364 of this number.

Wanted .- Situation as operator, or to take charge of a business, by a man who has been many years a photographer, and had good experience. First-class reference can be given.

> Address В. С., Office Philadelphia Photographer.

### Waymouth's Vignette Papers.

### RICHARDSON'S SENSITIZED PAPER

is economical, because it saves time, trouble, and money, and its printing qualities are unsurpassed. See advertisement in Photographer for July and August, 1876, Mosaics for 1878, or send for cir-C. F. RICHARDSON, Wakefield, Mass. cular to

### Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

### CHEAP! CHEAP!! A SUPERB MICROSCOPE

and Outfit For Sale!

ONE ZENTMAYER'S ELEGANT "GRAND AMERI-CAN BINOCULAR," fitted with objectives 1-10th to 2 inches, all of Zentmayer's accessories, case of mounting material and instruments; two cabinets of assorted foreign and American objects; Moller's Diatom Test-plate, etc., embracing a perfect outfit for a student or professional Microscop-Cost over \$800. Address

W. J. LAND, P. O. Box 305, Atlanta, Ga.

ZENTMAYER STEREOSCOPIC LENSES FOR SALE. -A pair of 21 inch focus, good as new, will be sold for \$25. Address

> Z21, care Philadelphia Photographer, 116 N. Seventh St., Philadelphia.

See Seavey's Advertisement, page 332 of October number. and page 364 of this number.

### **EMULSION PHOTOGRAPHIQUE FRANCAISE**

ALBERT LEVY, 77 University Place,

Sole Proprietor. NEW YORK, June 14th, 1878.

Having been trying for the past two or three years to find Dry Plates which were sensitive and reliable, I am well pleased to be able at the present time to get any of my amateur photographic friends out of the fog, and show them the means of obtaining Dry Plates which work well and reliable in all places and weather, and require no art or eleverness to produce good, clear negatives, vigorous and brilliant prints.

I purchased of Mr. Albert Levy one dozen of his Dry Plates on trial, and the result so far exceeded my expectations that I really began to think that I was a photographer, forgetting it was the plates and not the man. I have long ago discontinued using bath plates, and all other plates or emulsion except his, and have invariably found them to work the same.

> Yours, etc., H. W. WICKHAM, 384 and 386 Broadway, N. Y.

GREAT chance to make money. If you can t got got greenbacks. We need a person If you can't get gold you can get in every town to take subscriptions for the largest, cheapest and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address "The People's Journal,"

Portland, Maine.

HALL'S Transparent Crystal, Granite and Negative VARNISHES. Sold by all Dealers.

A. LAMOR,

EDW. LAMOR,

ARTISTS.

Photographs finished in Water Colors, Crayon, or India Ink, in the highest style of the art.
PORTRAITS IN OIL A SPECIALTY.

Negatives finely retouched.

738 SANSON STREET, PHILADELPHIA, PA.

### Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

By a young man, nine years' experience, understands the business thoroughly; satisfactory references; samples of work on application; Texas preferred. None but those meaning business need apply. Address Charlie, care of J. A. Arvin, Mexia, Texas.

Having a thorough practical experience in all the departments of photography for the past fifteen years, especially under the skylight and in the dark-room, I feel warranted in making application for a position, or would run a gallery on shares: no specimens. Address "Pyro," eare of J. Haworth, Esq., 626 Arch Street, Philadelphia.

As operator, in none but a good gallery; practical art studies, etc. Manipulator, care George S. Bryant, 34 Broomfield Street, Boston, Mass.

By a competent printer and toner, in a good gallery; will come on trial to a responsible party; can also do general gallery work if necessary. Address W. T. Tate, Oneida, Knox Co., Ills.

In some first-class gallery, as operator; having had fourteen years' experience in none but first-class Philadelphia galleries; fancy printing and retouching, or would take charge of a gallery where there are facilities for making first-class work. Geo. W. Schell, Parker City, Penna.

By a first-class retoucher; can print. Address Harry E. Ewing. P. O. Box 133, Galesburg, Ills.

A young man of good habits, and who is a first-class printer and toner, would like a situation. Has lately been with C. D. Mosher, of Chicago, and has good references. Address William L. Clarke, 2 Dallas Place, Boston, Mass.

A situation in a gallery: make myself generally useful, with years of experience; wages low. Address Box 25, Mill City, Wyoming Co., Pa.

By a first-class artist, and especially in crayon, india-ink, and water colors. Address F. Stammell, 304 Fifth St., near Second Ave., New York.

As operator or printer and toner, in a firstclass gallery; am willing to work, and moderate wages: I think my knowledge worthy a good situation. Address C. F. Moelk, Fort Worth, Texas.

To print, tone, and operate; can give good reference. T. C. Kwoezalla. No. 3704 Penn Ave., Pittsburgh, Pa.

By a young man of five years' experience, of steady habits, does not use liquor or tobacco; for reference, samples of work and photograph of self. Arthur Mooney, Charles City, Iowa.

Will soon be open for an engagement, an operator of twelve years' experience; good chemical man, poser, lighter, retoucher, printer and toner, also good in reception-room; will work for salary, or run gallery on shares. Address W.S. F., Macon, Miss.

By an operator of eight years' experience; can operate, print, and retouch; wages not so much an object as employment during the winter. Address G. W. Moore, Medina, Orleans Co., N. Y.

A lady having several years' experience in finishing negatives, prints, and coloring, can also work in crayon, wishes a situation. Address P. S., Care of Mrs. Wm. Clarke, 215 Newark Ave., Jersey City, N. J.

Have had two years' experience; can print and operate: would like to finish my trade; can give good reference: wages no object; will go to any City. Address T. C. Kwoczalla, No. 3706 Penn Ave., Pittsburgh, Pa.

By an artist, in india-ink, crayon, and oil colors; first-class work. State terms, and address H. P. Smith, Chambersburg, Pa.

### GIHON'S

# Photographic Colorists' Guide,

BEST MANUAL ON COLORING PHOTOGRAPHS. \$1.50.

One-third of the proceeds of the sale of this book are devoted to the family of the deceased author.

EVERY PHOTOGRAPHER SHOULD BUY A COPY.

EDWARD L. WILSON, Publisher, 116 North Seventh Street, Philadelphia.

# HEARN'S PRACTICAL PRINTER.

SECOND EDITION

\$2.50.

NOW READY.

See Other Advertisement.

# HEARN'S PRACTICAL PRINTER

### SECOND EDITION.

Is a Complete Manual of Photographic Printing on Plain and Albumen Paper and on Porcelain.

At one time too little attention was given to Photographic Printing, although

it is indeed quite as important a branch of the art as negative making.

The author and publisher feel that they have created a REFORM in this matter, by the issue of this work, and thus put money in the pockets of all who read it. There are some who still want it and we shall meet the demand.

### CONTENTS.

The Printing-room. The Silvering- and Toning-room. The Drying-room. The Positive Bath for Albumen Printing Weak Negatives.
Paper.

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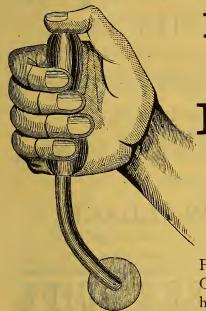
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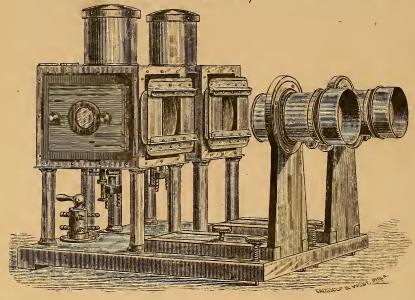
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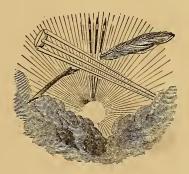
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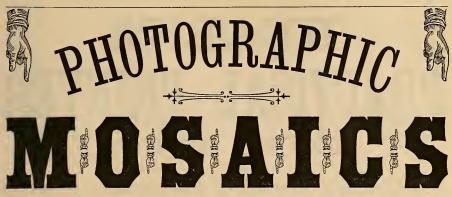


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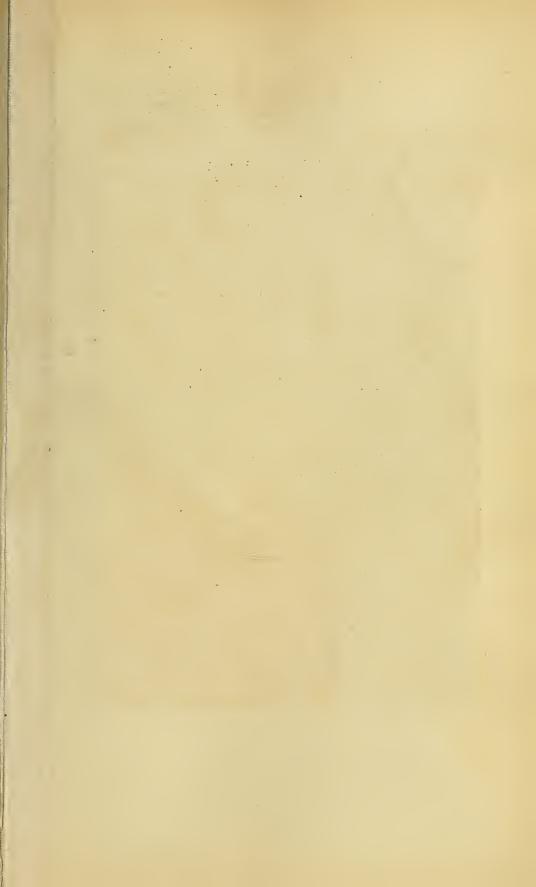
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OVER THE HILLS TO THE POOR HOUSE.

# Philadelphia Photographer.

Vol. XV.

#### DECEMBER, 1878.

No. 180.

Entered according to Act of Congress, in the year 1878,

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In the office of the Librarian of Congress, at Washington, D. C.

#### NEXT YEAR.

A N editor and publisher is compelled by the nature and duties of his profession to look into the future a good deal ahead of other folks; and not only that, but to prepare for the good of his readers and patrons ahead. There is a season of each year, however, when his vision is considerably beclogged, and he somewhat puzzled to know just how to move. And that season is a sort of a transition one, which always comes in December.

We all know how the outer shell drops off of sundry insects, and leaves them more bright and beautiful than ever before. What anxiety they have about it before the transition occurs, as to whether it will ever occur at all or not, we know not; but we do know that our subscribers most all drop off this season of the year, and we are accordingly anxious as to our future state, and as to how many of them will renew their subscriptions promptly, and thus enable us to prepare good things for them in the future. Will you not, therefore, be pleased to relieve this anxiety now, by sending in your subscription for 1879 at once?

Of course we mean to continue to cater for your good, but what sort of a table we shall be able to set, depends largely upon your promptness.

There are many projects which we have, and which we would like to carry out for the future good of our art, tending towards its elevation and our mutual advance, but we cannot do it alone.

We are afforded but little space here by the editor to speak for our publisher, and therefore beg only to say further, that a confidential circular goes to you all by post; on page three of the cover is our prospectus, and herewith an order sheet. Please read the former and fill up the latter liberally, and be assured it shall be returned to you in good measure every month of the new year, which we trust to one and all may be a HAPPY NEW YEAR.

#### A TRIBUTE TO W. H. RULOFSON.

I FEEL too sad to write; I have not attempted work to day. I came home yesterday from the funeral of our worthy National Photographic Association President, W. H. Rulofson. It does not seem possible; I can hardy realize that so it is, that the cheerful face, the active body, the lively, chatty, magnetic flow of conversation are all laid away—have joined their kindred dust.

A frightful fall of some fifty-six feet, took him away from the cares of life, Saturday, November 2d, at 4.30 P. M. He had run up-stairs to look at some workmen who were just finishing "closing in" the roof over a new story he had built, which em-

bodied new rooms and many substantial improvements, and skipping along the edge and mounting the fire-wall, he placed his foot on a projecting cap, and turning the wrong way, he fell to the street, with the thrilling exclamation, "My God, I'm a dead man!" His heavy fall crushed him instantly, of course, although involuntary breathing continued a few moments. Thus closed his career, a man of many noble and generous impulses, strong in likes and dislikes, ready and noted for conversational ability, and of no less acknowledged weight as an advocate of whatever measure he chose to espouse; instance the National Photographic Association debt.

He left a devoted wife and ten children, five of them under eleven years of age. A meeting of the photographic fraternity was held, and suitable resolutions recorded, and duly forwarded to the photographic journals and family, etc. Many, many years will pass before his face and name will have been forgotten. His years of continued kindness to the writer had not been without fruit, I trust; and a letter from his fluent pen, bearing date only a few days since, shows him, at fifty-two years of age, to have been in the full vigor of manhood, and possessed of most generous ideas and utterances. To the credit of the fraternity be it said, a delegation of some twenty-five photographers attended his funeral in a body; Messrs. G. D. Morse, H. W. Vaughan, Peters, Marden, Thwaits, Perkins, Winter, and others of the well-known members of our craft among them; Messrs. Morse and Vaughan being our delegates among the pall-bearers. The I. O. O. F. took charge of the funeral, and the writer, as we marched with solemn tread, the way to Lone Mountain Cemetery, to lay him within sound of the surf of the rolling Pacific Ocean, remembered helping to initiate him into the same I. O. O. F. that now were performing their last sad offices toward a brother member. The solemn and impressive ceremony was made more so by the kindly and feeling presence of the Most Worthy Grand Sire of the Order for the United States. So high was the esteem in which the deceased was held, that the large hall was closely filled, and the stricken anguish of the widow and fatherless, drew tears from nearly every eye present.

J. P. Spooner,
Stockton, California.

#### ENTHUSIASM.

BY E. K. HOUGH.

THERE is no sight more grand than a full rigged ship before a strong breeze, all her canvas set and drawing, the helm holding her firmly to her course, and her buoyant prow rising with proud and easy grace over the buffeting billows, that seek in vain to stay her progress.

And what a fresh breeze is to a ship, enthusiasm is to a man.

It enlivens and inspirits him, and gives him the grace of motion with assured direction. We know by his look and action that he is driven by a purpose, and guided by a will that carry him onward over all obstacles.

While a man without enthusiasm is like a ship becalmed, floating with the tide backward and forward as the current runs, rocking idly without purpose or direction, and turned hither and yon by every whirling eddy or baffling billow.

With enthusiasm a man is "plus;" without it "minus."

Enthusiasm is to effort like the run before the jump; it carries a man much further than he could go without it.

Enthusiasm is to the courage and energy of a man like the reserve force to a great army, coming in on the day of battle to turn the tide of victory.

Enthusiasm is in life what the charge is in war; it overcomes many obstacles that a slow and dull advance would be powerless to carry.

Enthusiasm is to the soul like the tempered spring to steel giving its elastic energy over the dull tenacity of common metal.

In short, enthusiasm is the soul of action; the breathing spirit that animates the dull routine of life; the living fire that glows and warms from the hearts of men outward through all their lives. It is the enthusiasm of genius, more than the hope of reward, that sustains all poets, artists, and scientists in their labors, and carries them to the loftiests heights of thought, expression, or discovery.

I cannot do better in closing than to quote the words of a well-known writer on art, describing the power of enthusiasm in working out a thought or embodying a conception. He says:

"A woman travailing with child does not undergo more throes than a man with an idea. It robs him of his sleep, it takes from him his appetite, it sits behind him on his horse, it drives him from the streets into the wilderness, it possesses him like a fever, until it is perfected. Then come the joy and the ecstacy of birth. All is ready for the labor, all the materials needed, all the knowledge required has been devoured and assimilated. The mind under the fierce spurring of the soul has become a moral devil-fish, and has thrown out its numberless arms in every direction, and has swept into the maw all that was fit for the purpose. Then organization steps in. The writer seizes his pen, the sculptor his clay, the artist his brush, and all work out to the best of their powers the idea that grows flery hot within them. And until all is finished each works as if madness possessed him. There is a sort of fierce joy in the labor, not unaccompanied with tears and sobbings, for where there is fire in the soul there will be water in the eyes. To such men, actuated by such impulses, considerations of money are impossible, for the idea is all potent, and their one thought is to express it. When it is expressed, and the child is born, then are they as ordinary men, and open to ordinary considerations, much to the surprise of worldlings, who exclaim with wonder that they can see no difference between Senor Valles, the great painter, and other men. Nor can we blame them, for when they see him there is not any, not a hair's, difference."

New York.

PROF. ELIHU THOMSON, in the Journal of the Franklin Institute, describes a method of grinding glass specula without the use of metal tools. It is based on the fact that when two pieces of glass, or other material, in the form of equal disks are ground together, one above the other, the under one always becomes convex while the upper one becomes concave.

#### OUTLINES OF CHEMISTRY.

BY HENRY M. M'INTIRE, M.E. (Continued from page 333.)

OPPER (atomic weight, 63.5; symbol, Cu). Copper is one of the earliest known metals. It was in use long before iron, both as copper and in combination with tin. It is so well known that it hardly needs description. It possesses a deep-red color, very great tenacity, and is very malleable and ductile. It melts at a red, and is slightly volatilized at an intense white heat, tinging a flame, then, green. When exposed to the air, dry or moist, or to pure water, it is not affected. Besides its very many uses in the arts, as a metal it is quite important as a constituent of alloys. With zine it forms brass, and, with different proportions of tin, bronze, bell-metal, gun-metal, or speculum metal, as the ease may be. There are two important oxides of copper, Cu2O and CuO.

Suboxide of copper, cuprous oxide, or red oxide of copper, Cu<sub>2</sub>O, occurs in nature, and may easily be prepared artificially. It unites with acids to form the cuprous salts, which are not stable, changing rapidly in the air to the cupric.

Cupric oxide, or black oxide of copper, CuO. This is the oxide that is formed when heated copper is acted upon by the atmosphere. It is a quite useful agent in analytical chemistry. It unites with acids to form the cupric salts, of which may be mentioned cupric sulphate (CuSO<sub>4</sub>, 5H<sub>2</sub>O), commonly known as blue vitriol, a substance employed in the manufacture of several pigments, in calico printing, in the galvanic battery, etc.

LEAD (atomic weight, 207; symbol, Pb). Lead is a quite ancient metal; that is, if the age of a metal depends on the length of time that it has been known to man. It is, as is well known, of a bluish-white color, quite soft, and almost a failure with regard to ductility and tenacity. In perfectly dry air, the surface of the metal remains untarnished, but, if the air be moist, a film of oxide soon forms. In pure water lead is unchanged, but if the water be impure it attacks the metal, and in some cases dissolves some of it; and, as lead is poisonous, and is often used for water-pipes, the question of "lend-

poisoning" is one of vast importance. It is a certain fact that all kinds of water will not dissolve the metal; which will and which will not is, however, an open question. It may be set down, however, that if water contain free carbonic acid it will be injured by contact with lead, as carbonate of lead will be formed, which is soluble in water containing carbonic acid. If the water contains carbonates it may be regarded as safe, for carbonate of lead will be formed as a coating on the metal, which will be insoluble in the water (that is, if no free carbonic acid be present); the same thing may be said of sulphates. But for water containing chlorides or nitrates the case is the reverse.

The alloys of lead are quite important: shot-lead (lead and arsenic), type-metal (lead and antimony), may be mentioned. There are three oxides of lead, PbO, PbO<sub>2</sub>, and 2PbO, PbO<sub>2</sub>.

Litharge, or lead monoxide, PbO. The oxide formed by the action of air in melted lead. Its color varies from straw-yellow to yellow-red, depending on the method of preparation. It forms with acids the lead salts.

Lead dioxide, or punc-colored oxide of lead, PbO<sub>2</sub>, a brown powder, which, when heated, yields up half of its oxygen and is changed to the monoxide. It does not form a series of salts.

Minium, red lead, or red oxide of lead, 2PbO, PbO<sub>2</sub> A mixture of the two preceding oxides. Used chiefly in the manufacture of flint-glass. Of the salts of lead of much importance are lead acetate, or sugar of lead, and lead carbonate, or white lead.

THALLIUM (atomic weight, 204; symbol, Tl). A metal that was discovered by Mr. William Crookes, of London, in 1861, by means of the spectroscope. It occurs in iron pyrites, where it seems to take the place of arsenic. It resembles lead very much in its physical properties. It has two oxides, Tl<sub>2</sub>O and Tl<sub>2</sub>O<sub>3</sub>.

Mercury (atomic weight, 200; symbol, Hg). Mercury is one of the metals earliest known to man. It derives its name from the Greek, meaning liquid silver, for what reason is obvious. It is the only metal liquid at the ordinary temperature, solidify-

ing at 39° below zero, and boiling at 662° above, although it slowly volatilizes at all temperatures. It is not oxidized at ordinary temperature, but at about 750° it rapidly absorbs oxygen, forming the red oxide. It is used to a great extent in metallurgy, for the extraction of gold and silver from the ores. Many of the amalgams are of great use in the arts. Some of its salts are quite valuable in a medical way, others for pigments. Mercury forms two oxides, Hg<sub>2</sub>O, HgO.

Suboxide, or black oxide of mercury, or mercurous oxide, HgO, can easily be prepared, but is very unstable, passing upon the least provocation into the red oxide and the metal. With acids it forms the mercurous salts, of which mercurous chloride, or calomel (HgCl), is quite important.

Red oxide of mercury, or mercuric oxide, HgO. Much more stable than the preceding, but not so much so that when heated to redness it will not be changed to oxygen and mercury, for which reason it is often employed as an oxidizing agent. It forms with acids the mercurous salts, of which mercuric chloride, or corrosive sublimate, HgCl<sub>2</sub>, may be mentioned.

SILVER (atomic weight, 108; symbol, Ag). This is another of the metals first known to man. It occurs in nature, both native and in ores from which it is quite easily extracted. It is of a pure white color, quite hard, quite malleable and ductile, and is probably the best conductor of heat and electricity known. Silver is not affected by the air at any temperature. It stains glass yellow to orange; is but slightly attacked by hydrochloric acid. Boiling sulphuric acid changes it to sulphate, but nitric acid, hot, cold, strong, or dilute, dissolves it quite readily. It has also a great affinity for sulphur, forming with it the black sulphide. This is the cause of the tarnishing of silver. There are two principal oxides of silver, Ag<sub>4</sub>O, Ag<sub>2</sub>O.

The *suboxide*, Ag<sub>4</sub>O, is a black powder, very unstable. It forms with acids the lower series of silver salts which are of so little importance (and very, very unstable, by the way), that they need hardly be spoken of.

Silver oxide, Ag<sub>2</sub>O, is of a brown color, being decomposed into oxygen and silver at a red heat. It forms the well-known series of silver salts of which silver nitrate is, perhaps, of the most importance. Its properties are too well known to require description. The like may be said of the chloride, iodide, and bromide.

GOLD (atomic weight, 197; symbol, Au). The exceptions are so very, very rare, that it may be said that gold always occurs in nature in the metallic state, and with the exception of iron as the most widely distributed metal known (that is, of the metals that are made use of in the metallic state). For example, there is enough of it in the clay underlying the city of Philadelphia to pay the national debt, in all probability; and when it is remembered that the stratum underlying this auriferous clay is generally richer in the metal than the clay is, it must be acknowledged that Philadelphia, of all places, is certainly "upon a hard-money basis." This metal is quite soft, of a bright yellow color, may be drawn into wire, and is the most malleable of all metals. Selinic acid is the only simple acid that acts upon it. Free chlorine and nitro-hydrochloric acid succeed in dissolving it, however. It has two oxides, the suboxide, Au<sub>2</sub>O, and the oxide, AuO. The salts of gold are of but little use, the chloride being, perhaps, the only one that is utilized. The standard gold of the country-that is, the metal used for coin-is 900 fine; that is, there are 900 parts of gold to 100 of the alloy, silver. It might have been well to have said, under silver, that standard silver is 900 fine (the alloy being copper). The United States uses the decimal system of fineness, similar to France; on the other hand, England uses the duodecimal; her gold and silver having onetwelfth of alloy.

PLATINUM (atomic weight, 197.4; symbol, Pt). Platinum is quite rare, occurring always in the metallic state. It is a white metal, which will take a very high polish. Not very hard, quite ductile and tenacious, and very infusible. It is affected by acids in exactly the same way as gold, except that selenic will not affect it. Alkalies at a high temperature attack it to an appreciable ex-

tent. Chlorine has no effect upon it. It has two oxides, the protoxide, PtO, and the binoxide, PtO<sub>2</sub>. Its salts are of but little use; it, itself, is chiefly used for dishes and crucibles, in chemical laboratories, for which it is peculiarly fitted.

Palladium (atomic weight, 106.5; symbol, Pd). A very rare metal, occurring in the ores of platinum; was discovered by Wollaston in the year 1803.

Rhodium (atomic weight, 104.3; symbol, Ro). Was also discovered by Wollaston in 1803. It usually forms about one-half of a per cent. of the ores of platinum.

RUTHENIUM (atomic weight, 104.2; symbol, Ru) is another metal which occurs in very small quantities in the ores of platinum. It was discovered by Clausen, in 1845.

OSMIUM (atomic weight, 199; symbol, Os). Like the preceding three, it occurs in platinum ores; was discovered in 1803 by Tennant.

IRIDIUM (atomic weight, 197.1; symbol, Ir). Occurs in the same way as osmium, and was discovered by the same person at the same time.

This, then, ends inorganic chemistry.

#### ORGANIC CHEMISTRY.

As the domains of organic chemistry are almost boundless, as the entire subject is by far the most complicated division of chemistry, and as to treat it with the same degree of completeness or incompleteness as the inorganic division requires far more space than that required for inorganic chemistry, no effort will be made here to speak in a general way of organic chemistry, neither will it be required. Of course the theoretical part is based on the principles laid down at the very beginning of this series of articles. A few of the most important organic substances will be mentioned, almost at random, and with that these articles will close.

ETHYL ALCOHOL, C<sub>2</sub>H<sub>6</sub>O, is produced in the vinous fermentation of sugar. The solution of sugar is fermented, and the alcohol separated by distilling, being repeatedly distilled to separate from the water. It is a colorless, volatile liquid, with a character-

istic and pleasing odor and burning taste. It is a solvent for very many substances.

Ether,  $C_4H_{10}O$ , called often sulphuric ether, although in chemistry sulphuric ether is another substance than this, which is there known as ethyl-ether. It is called sulphuric ether, in common parlance, because it is made from alcohol by means of sulphuric acid. When alcohol is added to sulphuric acid, ether and water are given off. It is a very valuable liquid, having a characteristic smell; its vapor is inflammable, and even explosive when mixed with air.

ACETIC ACID, C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>, may be prepared by the direct oxidation of alcohol. When alcohol is changed to acetic acid, acetic fermentation is said to have taken place.\* This acid is a colorless liquid, solidifying at a temperature of 63°, from which it is called "glacial." It has a peculiar smell, and mixes with water in all proportions. It will not then solidify at the temperature given above, and is no longer "glacial." It forms with bases the series of salts known as acetates.

Oxalic Acid, C<sub>2</sub>H<sub>2</sub>O<sub>4</sub>, occurs in crystals, which are decomposed by heat into carbonic acid, carbonic oxide, and formic acid. With bases it forms oxalates, which may be either neutral or acid.

Tartaric Acid,  $C_4H_6O_6$ , occurs in many plants and the juice of many fruits. It is obtained in large crystals, easily soluble in water. It forms tartrates with bases, which may be either acid or neutral. The neutral potassic tartrate is deposited during the fermentation of wine, and is known as tartar. The acid potassic tartrate is known as cream of tartar, and the double tartrate of potassium and antimony as tartar emetic.

CITRIC ACID, C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>, occurs in many fruits, notably in the lemon. It is obtained

in large crystals, soluble in water. It forms citrates, which may be acid, neutral, or basic.

GLYCERIN,  $C_3H_sO_3$ , occurs in most fats and oils, united with a fatty acid. Thus in stearine it is united with stearic acid, as glycerin tristearate. In soap-making the acid is united with an alkali to form an alkaline stearate (soap) and the glycerin is liberated. It is a thick, syrupy liquid, colorless, and heavier than water. It mixes with alcohol and with water in all proportions. If it be acted upon by strong nitric acid, trinitroglycerin is formed, the violent explosive so useful in engineering operations.

Saccharine Bodies, of which it may be mentioned that there are three classes: 1. Sucroses, or sugars proper; 2, glucoses, or grape sugars; and, 3, amyloses, or starch and woody fibre. Of the sucroses, or sugar proper  $(C_{12}H_{22}O_{11})$ , sucrose, or cane sugar, and lactose, or milk sugar, and of the glucoses, or grape sugars,  $(C_6H_{12}O_6)$ , dextrose, or grape sugar, and levalose, or fruit sugar, may be mentioned, and of the amyloses, or starch and woody fibre  $(C_6H_{10}O_5)$ , starch, setrim, gums, and cellulose may be instanced.

Starch occurs very widely in the vegetable world. It is insoluble in cold water, but becomes soluble in boiling. When heated to 320°, it is converted into dextrin, or British gum.

Cellulose, "the colorless material of the woody fibre of young plants," may be seen in a nearly pure state in cotton or linen fibre. When acted upon by strong nitric acid, it becomes very inflammable, even explosive, and also soluble in ether and alcohol. This is, of course, nitrocellulose  $(C_6H_8(NO_2)_2O_5)$ , gun-cotton, or soluble cotton.

And, with this, organic chemistry is ended, although, probably, many important substances have been left unmentioned; an excusable omission, when it is remembered that organic chemistry includes all of the vegetable and animal kingdoms.

Here also ends the "Outlines of Chemistry."

<sup>\*</sup> As a homely illustration of alcoholic and acctic fermentation, eider may be mentioned. When first made, it contains quite an amount of sugar, but fermentation takes place, alcohol is produced, and we have "hard cider:" time goes on, the alcoholic fermentation is completed, and the acetic fermentation takes place, the alcohol becomes acetic acid, and we have vinegar.

### FIRST PREMIUM WILL BE AWARDED.

BY C. D. MOSHER.

ROM four to six hundred dollars a year in gold to any photograph operator that can produce negatives for his employer, with that degree of perfection in the light and shade, giving that fine texture and definition in the photograph, the same as the skin of the face has to the eye, showing in the print the softness of the flesh and even the single hairs, and the quality of the finest fabric. Such negatives are in great demand to-day, and they need no retouching (unless in some very extreme cases, to obliterate freckles). Photographs from them are perfect in themselves, and truthful to nature with all her loveliness and purity, without being marbleized by the retoucher's pencil. They save the expense to your employers of from fifteen to twenty-five dollars per week for a first-class retoucher. A large portion of this amount should be added to your salary, and such beautiful negatives should give an increased demand for photographs, by an appreciative public and lovers of art, as we have not seen since the days of Berlin finish or retouching came into practice; for such is ultimately to be the standard of excellence in operating under the skylight, and the sooner it comes the better it is for every one.

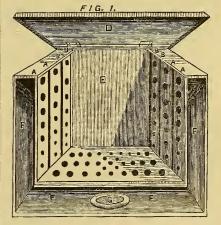
#### PARSONS' FUMING-BOX.

A<sup>S</sup> promised, I herewith send you some rough drawings of my fuming-box, and a description of it, rougher than the drawings; but please smooth down all the rough places, so that it will be presentable to your readers, if you consider it worth the trouble.

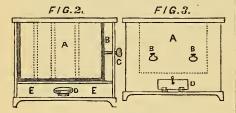
This apparatus is simply one box sliding within another, the outer box containing a chamber at the bottom and two sides, which is rendered air-tight, or nearly so, by an inner shell, or case, just large enough in width to receive the inner box, but is two inches longer, to admit of sliding the inner box that distance. Both the inside box and the case, or shell, that it slides in, are perforated, as you see by the drawing, Fig 1, at two sides and bottom. The reason 1

have made the holes larger at the top, and smaller as they go towards the bottom, is to better regulate the fumes, as the quantity escaping through the large holes at the top will equalize the nearness of the saucer to the bottom of the sheet. Perhaps I can do no better than to describe our method of preparing the paper for this box. First, we have made a dozen or more frames, 22 x 24 inches (notice that these frames are just the size to slide perpendicularly into the inner box), of half-inch pine. The inner part of the frames is just large enough to catch a whole sheet, which we attach with varnished pins. On either side of the frame may be attached one sheet of paper. As the frames are filled they are put upon a rack in the silvering-room to dry spontaneously, or by a gas-stove with a piece of soapstone on top, to diffuse heat. In this way the first paper is ready for fuming before the batch is silvered, and when large quantities are used, it can be silvered and fumed right along without any trouble, as it will be always ready. By the use of these frames there is no necessity to again handle the paper till it is cut up for use; besides, economy of time is an advantage.

The construction of the box, I think, can easily be seen from the accompanying diagrams. In Fig 1, I have purposely left the front out of the box. AA BB are the grooves that the frames slide into. It can be made



to take any number of frames. Mine will fume six sheets at a time, and is about all I require at one fuming. We have never, since using this box, had one ease of uneven fuming, but the paper works splendidly at all parts of the sheet. As soon as the paper is ready, we take about one ounce of ammonia (which will fume enough for all day and more) in a saucer, and put in chamber, having previously ascertained that the box was "closed;" put in frames with paper, shut down top cover, one pull at the ring handles shown in the front of the box, "and off she When fumed enough, push back handles again, open cover, take out paper, and as the paper goes out, so will the small quantity of "exhausted" ammonia. In the meantime, that in the chamber is gathering fresh strength from the saucer, and is fully charged for the next batch. In Figs. 2 and 3, I have shown the end and side sections. It will be seen that the bottom, which the inside



box slides upon, and also the sides, are carried from front to back, and supported in this way. The inside box is about two inches shorter, which will be just enough to open or close the holes when slid either way. It is best not to have it any shorter than is absolutely necessary, as then there will be no danger of pushing it too far either way.

S. H. PARSONS, St. Johns, Newfoundland.

#### OUR PRINTING.

I was but a few years ago that printing was considered to be the most mechanical part of photographic work, and that any boy was capable of doing it after a few weeks' instructions; but, to-day, what a difference! It is thought now to be one of the most difficult parts of photography. The printer now studies the quality of the negative, he prepares his paper to correspond with the varying conditions of the negative, he masks one part of the background and prints in deeper on another part, as may be

required to give the best effect, and in various ways controls the work as it progresses, so as to produce the best possible result. Printing in this way is as much an art as that of negative-making, and requires as much study and skill to do justice to the work.

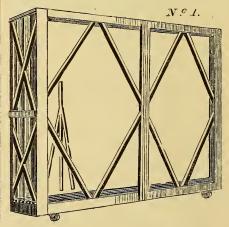
What encouragement does the operator have when he looks at some prints, from a nice, brilliant negative, overtoned, with no brilliancy to them, or some other carelessness on the part of the printer? I do not mean to say that it is the printer's fault that the majority of photographers do not do better work, for in most eases it is that man's fault who makes the negative. He does not study enough; he is getting behind the times. Photography to-day is not what it was long years ago. It needs as much study and skill as it does to become a lawyer or a doctor.

C. J. H.

#### A FRAME FOR BACKGROUNDS.

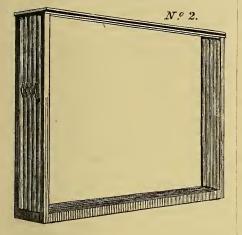
BY H. S. SUTTER.

SEND you my design for a backgroundholder. No. 1 is a front view, showing

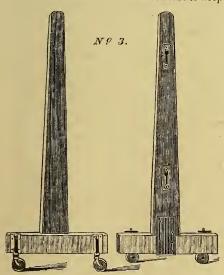


the end from which the grounds are taken and replaced whenever required. No. 2 shows the back and end, with the braces which keep them in position. No. 3 is of the standards which are used for all grounds. I will give you a description of the one in my use for the last year and a half. Inside measure, two feet deep, eight feet high, and

twelve feet wide. The lower portion on platform, 12 x 2 feet square, supplied with grooves to admit an easy movement of the ground. Each groove has four small cast-



ors, the same as those used for trunks, on which the grounds rest and move. The rest of the holder is a skeleton framework, with sufficient braces on the back and side to keep



it solid. The top is provided with grooves to correspond with the bottom, the whole resting on four large castors (wheels about four inches in diameter). Each background-frame is supplied with two bedhooks on each end, also a handle, to facilitate

the changing of scenes. Should a certain ground be required, the open end of the contrivance is swung out in the middle of the room (the other swinging on a pivot); then grasp the handle of the ground, draw it out, and with the left hand take the standard and hitch it up the same as a bed. The assistant at the other end following suit, the holder and ground are moved back in position ready for use. All this is done in a moment of time. The standards are very substantially built, about four feet high, using rather large castors.

Photographers using a number of grounds will find this very practicable.

#### ARE OUR PORTRAITS ARTISTIC?

A FEW REMARKS ON THE LIGHTING OF THE MODEL, AND THE EXPOSING, DE-VELOPING, FIXING, AND RETOUCHING OF THE NEGATIVE.

BY CHARLES W. HEARN.

DURING the last few months my attention has especially been drawn to the photographic portrait heads that are of the class which the majority of photographers are making at the present time. We all agree that the time for "black and white" negatives has long since passed by, and that now we strive to obtain detail in the shadows, and have good high-lights and half-tones as well. The extent to which this is carried is what I would here speak of.

I am afraid that we (although I know of a few exceptions, of whom I will speak further on) are too prone to strive after a good and strong negative, and not enough after one that is thin, yet brilliant, and as full of detail as a sound nut is full of meat. The negatives they do obtain are those which have exceedingly bright, clear, and white high-lights, with rich, dark, and tolerably clear shadows. This is, of course, a great temptation for the photographer to avoid obtaining, as such negatives, if not possessed of too great contrasts, are indeed very beautiful, yielding, with little trouble, rich and lovely prints, but they are, nevertheless, not really artistic.

As I understand art, it is in being true to nature and natural things whenever we are imitating them, and our results are artistic whenever we have succeeded in so doing. The landscape painter endeavors to imitate nature, not only when he mixes his colors, but also when in applying the brush he strives faithfully to delineate on his canvas the beauty or grandeur of the scenery before him. If he succeeds, he is proportionately praised and rewarded, for an artist he has truly proved himself to be. This landscape painting is judged as artistic simply by its faithfulness to nature; if it deviated one iotal from it in trueness, it would be a failure.

The portrait painter, as he endeavors to portray the face of his model, can not only adopt any style of lighting he may wish, but he can also secure from a variety of expressions that which is best suited to the idea to be conveyed in the picture. it is to be one of a private person, and for his or her family, then a pleasing expression, and one that is natural to the original (for many unnaturally forced expressions appear), is what the artist has got to catch, while the various changes of expression are rapidly shown him (as if in a panorama), while the model is engaged with him in conversation. If he succeeds, he is likewise rewarded in some way or other. This picture is also judged by its trueness to the original, which in this case is a human person. If the model is to sit for a Madonna, or for any delineation illustrative of the artist's conception of some poetic theme, there are many things which the critics must take into consideration, such as, for instance, the lighting he adopts, which is very powerful in portraying the passions of the human heart as illustrated in the face; a mild, soft light for gentleness, and the strong effects of light and shade when the fiercer passions are supposed to be dominant, is of great value to the true artist. Besides this lighting, there are many other things to be looked into, a few of which are, the character of the person as portrayed in the pieture, and as they understand it from their knowledge of the poem, the age for which the piece was supposed to have been written, etc. The artist's success depends, not only upon the true inside understanding of the poet's dream, but also in faithfully painting the same in his picture, so that in every sense there will be, singly and collectively, an harmonious\_blending of conception and execution.

Now, while it is necessary, not only in portrait, but in landscape painting as well, to keep, in the main, true to the original, and not deviate therefrom if it is to break any of the well-known rules of art, it is also just as necessary, in portraiture photographic, to keep true to nature as we see it, and the deviation, if any, should only be permitted when it has for its result the beautifying of the human face, and which, even if indulged in to a considerable extent, need not be called so very wrong or inartistic, because there are often times when every person appear to much better advantage, and the complexion clearer, than when about to sit for a photograph, and consequently our improvement, by judicious retouching, is not so very far out of the way when considered in this light.

Photography is not to be practiced in a mechanical way, the same as any mechanic works at his trade, but yet it is just this way that many are working at it to-day, without even the semblance of knowing that they are doing so. It is by no means sufficient to make a so-called good negative, and then, because it is neither too strong nor too weak, and tolerably good chemical manipulation, to think that, as regards the lighting, exposing, developing, and fixing of the negative, that they have arrived at the very acme of success. No, indeed; and, to change slightly a favorite quotation, we would say that "there are more things" in these generally considered mechanical operations "than what are dreamed of in our philosophy."

Our subject comes into the skylight, and the poser and operator proceeds to pose her, arranges the draperies, accessories, backgrounds, etc., as he may see fit, and then lights the whole (with some little care, I grant) as his taste dictates. The plate is exposed, developed, fixed, and—"All right; send up the next sitter"—and then the same thing over again. Is our highest aim reached, when we have expended this much care and study on our subject and chemicals? Is this negative, thus three-quarters mechanically and one-quarter artistically taken, all that we should strive to obtain?

It has been, for years, the cry through our journals, "Study your subjects," and with reverence I would say, may God bless the cry, and send it, with its fullest meaning, deep into the heart of every photographer in the land, and then shall we see photography take an immense stride onward towards real artistic merit, which, to say the most, it is far from having, as an average, at the present day. We want some more like Kurtz, Rocher, and Kent, and I do not cry these artists because it is said to be the fashion to do so; by no means, but because we do need them, and sadly to. We want our artists to strive to place real artistic merits in their work, where it can be studied and acknowledged as art, so that, whenever a collection of photographs are seen at any place of exhibit, it will become a source of habit for the public at large to view them with the same feeling and respect as they would one of "Harry Brown's Marines," "Luigi Grégori Portraits," or any of the works of Leslie or Maclise.

Photography has gained one advantage towards being considered and ranked, as it should be, among the works of art, for it is now, I think, almost invariably classed under that heading in catalogues, and side by side with paintings and sculptures.

The inspirations that our literature and "head-lights" have given us for years past have done much towards elevating us and our art, and from being classed as a low trade, as it has been in times past, it has become of such standing, by the unceasing energies of "our lights," that we need by no means be ashamed to confess that we are photographers, but we glory in the fact, as might "one to the manor born;" our cheek tingles, and our blood grows warm, when discussing the heights of attainment to which we are destined to reach in the near future. As for myself, I love to think of the time when we shall wake up to the privileges before us, and grasp, with a strong hand, the discoveries that shall burst upon the energetic and persevering seeker; when we shall have a better understanding of the chemistry of our art, and master it so well, that we shall not have our negatives yielded to us as they are now, with no perfect understanding, to the majority, how it is that we cannot control the chemical action so that, if we wish one negative to be like the preceding one as regards this action, that it will be so, and not different, as it must needs be, with the somewhat imperfect understanding we have of the exact conditions under which the chemical action was consummated.

#### Lighting.

To the photographer, as well as the portrait painter, the lighting is of the utmost importance. We know, in photography, that it will never do to light as the portrait artist would, as our results would be attended with too strong contrasts. We have to keep within bounds, both in posing and lighting, to oblige, not only our lenses, but the chemicals also.

A large part of our sittings are what may be called "plain portrait bust," and are not intended to represent any decided character of either the human face or figure, but are simply sittings for photographs to give to their friends. In this case it is not necessary that any clever arrangement of light and shade be adopted to carry out any happily hit idea, for all that is necessary is a good plain lighting of the class known as the "old-fashioned." If the face is of a lady, representing sweetness of disposition and temperament, let it be a soft, mellow light, as delicate as it can be, and avoid all strong shadows under the eyes, nose, and chin, for they are not in the original, and there is no reason why they should be in the negative.

Let us look at this subject, and study her for awhile, independent of the best position of her face, to photograph, which is generally about the only thing that is studied when the model is being posed and lighted. As before said, we should judge her to be sweet in disposition, and her face to be one that a life of ease and happiness has left its comforting marks upon, in the total absence of all lines of care and trouble which battling with the world is ever certain to give. Her complexion is clear; not even dark, haggard lines to be seen anywhere, and the lines under the eyes are slight and not discolored.

It is evident, then, that the lighting of this young lady should be such as will not give harsh shadows, a top-light, especially if distant, to be guarded against, as tending to give shadows under eyebrows, eyes, nose, and chin. A high-, side-, and top-light is good, but in this case, and in many others, a little lower still is perhaps better, providing roundness is obtained. So much for lighting up, and taking care of the shadows, to avoid giving the effects of care and trouble by dark shadows caused by lighting; but now let us look to the lights of the face, and this is what the writer would most especially like to call the reader's attention to.

No human face is there that has not got detail in every part of it, view it in whatever light we may. The color of the flesh of a white person is very seldom a decided white, but it is more of a faint pink, delicate pink and white, decided pink and white, rugged, florid, yellow, or brown, in a greater or less degree, etc. With any or all of these different classes of complexion, there are none who have in life what we often find in photography, a flat, intense, white high-light; for there we have the flesh of the original, which is in itself detail. It behooves us, therefore, to have detail in every part of the negative, high-lights and shadows, on the forehead and cheeks, as well as under the eyebrows, nose, or chin; and to do this the lighting has got to be exceedingly soft and delicate, to have contrasts between lights and shades, and to have roundness, together with detail, everywhere.

Although it is necessary that there should be detail in the negative, for a fair person considerable care should be exercised in exposing and future operations of the negative, to prevent it from becoming too gray in the high-lights, as to cause not only flatness, but also from making what may be called a "smootched" negative. For printing to obtain any strength at all, from a negative that has received a general diffusion of lighting, it will have to be printed a little further than we would like, and therefore the shade of the finished print will be considerably darker than the complexion of the sitter. If the subject, however, had been one who had a rich, clear, and dark complexion, then this style of negative, with the least imaginable proper treatment by the retoucher, would really be called artistic; but for a fairer person, the negative should have this general diffusion of light, and not so thin in printing qualities, as the negative of a darker (although just as clear a complexion) person should be.

Thus far we have cited two cases of persons with clear complexions, one lighter than the other, and with what is called the plain lighting. There is nothing to prevent the shadow effect from being used, however, if it is the photographer's pleasure to do so, but we might advise the use of a very delieate shadow as being more in keeping with the fairness of the person, if we desire to reproduce on paper what is most natural in life in the way of lighting; but there is nothing to prevent the artist in giving divers effect of light and shade as peculiar effects of lighting, providing it is artistically done, and the shadows under the eyebrows, eyes, etc., are not too dark.

To one accustomed to noticing the effect of light and shade everywhere in life outside of the studio, it is really at times quite astonishing to see what beautiful effects are often caused by accidental lighting, and we may meet and converse with a friend at times when the chance lighting plays so beautifully upon his or her face, as to cause the thought, after breaking the moment's chat, that we never saw that party's countenance appear to better advantage than it did just then; and unless we accustom ourselves, as mentioned above, to studying everywhere the effects of light and shade, we would move on entirely ignorant of what an important part this lighting we had viewed our friend in, may have played in softening the lines and haggard looks, and rendering, in the case of a lady, her eyes lustrously soft and beautiful.

In the case of persons with deep sunken eyes and haggard faces, it is all the more necessary that there should be no shadows east by high top-light, and it should be the aim of both the poser and operator, to select the proper collodion, and to properly light up the shadows of the face, by turning it towards the light, being careful in so doing that the best view is taken, and that flatness and "fishy eyes" do not ensue from the lighting. With careful handling by the observant artist, and proper time in ex-

posing, the deep shadows and haggard looks are so far obviated in the negative, that a print therefrom will be as soft and lifelike, as the face of the original itself when in its most favorable aspect, whereas, by improper treatment, many would have made a strong black and white negative.

There are a great many other varieties of faces, which the artist has got to pose and light in divers ways to obtain the most favorable impression, but which is done very quickly and artistically by the experienced photographer. Of course, at times there are many things to prevent the artist from always doing as he would like, but a determination to master the situation will do wonders towards its accomplishment.

#### Exposing.

The most careful lighting is completely spoiled, and the effect of the pose weakened, if the exposure is so ill-timed as to produce a totally different negative than was the artist's intention to have, when the posing and lighting were given. On this account, so as to provide against mistakes, the artist should at a glance, when the sitter comes into the skylight, be able to tell what style and class of negative would be best for the party to have, and then at once pass word to the operator to prepare a plate for a blonde or brunette, shadow or plain lighting, whether very thin in printing qualities or otherwise, and then the time of exposure could be given by the dark-room man, as he knows better than any of the others whattime is wanted to produce the desired negative with the collodion he used. way it seems to the writer that the results would be more likely to be correct, than if the dark-room man is left to himself to time, for he may not expose to suit the poser, and the poser may not expose to suit the operator's chemicals, and consequently it seems necessary that the above or some other equally good or better system be adopted, to bring about an harmonious result in the negative.

It is here in the exposure of the plate that the whole results of the former, and future preparation of the plate rests, for besides assisting the skill of the poser, by properly bringing out the carefully lighted shadows and delicately toned lights of the face of the model, we are also to look for other artistic merits of the negative, expecting as well to see it capable of producing prints with abundance of detail, yet with contrasts enough to prevent flatness. This can only be done by giving plenty of time, with the use of proper collodions.

Give all the time possible, without giving too much. Strive to obtain a thin, weak negative (but let it be fine, nevertheless, and not a flat, insipid one), providing prints from such would be natural, and look like the original. In the case of very fair persons, it may be necessary not to have it so thin, but a trifle more intense, so that it will print brighter, but the shadows under the eyebrows, etc., should be just as clear and soft, and as distinctly seen, as in a softer negative. We have been led to mention this word of caution, although it may have been unnecessary, because we are all more or less liable to make a negative with too much contrast, if advised to make anything at all approaching intensity.

(To be continued.)

#### SHALL WE SLEEP OR AWAKE?

WHILE spending a few weeks at the Academy of Design, in Chicago, recently, I was much gratified by the interest there exhibited in reference to our photographic art, and a desire on their part to connect a school of photography with the branches already taught there.

It told me our art was making itself known and felt by the public, and was being recognized by portrait-painters as an aid and a reliable assistant, even in that one old and great art. No longer need we be ashamed to be connected with photography. "We have elevated art, and it has elevated us." Let us keep on with the good work, and unite and work together stronger than ever.

Shall we let outsiders step in and take from us the honor of being first in the field to establish a school of instruction in photography? It is going to be done, and that soon. Who shall be first to take it in hand depends on whether we can revive the drooping energies of the N. P. A., and have an early meeting or not.

I see no reason why a goodly number of us cannot come together in Chicago the third week of January next, and talk over this matter, as well as many other things pertaining to our affairs. True, we are scattered, and our beloved President has left us; but is there not still more need of our reorganizing, and awaking to the interests of our art?

Whoever has not interest enough to do whatever he can for the advancement and elevation of our art, has no right to get his bread and butter through its revenue.

There is not a member of the N. P. A., nor even a photographer in the land, who has not felt that the organization has done him *much good*, benefiting him both financially and socially, beside the influence it has had on the minds of the public. We cannot afford to let it sink into oblivion. In sustaining that, we help ourselves, and make it easier to climb the hill of progress.

Let each one do what he can, and make one more effort to place our art in the front ranks with all portraiture, and establish an outgrowth of our N. P. A. which shall reflect honor on its members, and in the years to come every one who now interests himself will say with pride, "I was instrumental in starting that institution."

E. N. LOCKWOOD.

THE Photographische Correspondenz gives the formula for Härtwig's collodion, which is rather popular in Germany. Prepare the following solutions:

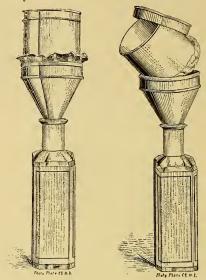
Nitrate of Silver, 8 grms. in 8 c.c. dist. water. Chlor. of Calcium, 1 grm. in 20 " alcohol. Citric Acid, . . . 1 drm. in 20 " "

Then heat in a wash-bottle 180 c.c. alcohol, and while continually shaking add the silver solution, and then eight grammes of collodion cotton. The solution is best kept warm in the sand-bath. 150 c.c. ether should now be added, a little at a time, and stopping to shake up; then, light being excluded, add the twenty c.c. of chloride of calcium solution, and lastly, the twenty c.c. of citric acid solution. The collodion, after standing a few hours, is now ready for use with gelatin, chalk-paper, or direct upon

glass. The prints are toned after being washed in a fixing bath containing gold.

#### PLATT'S UNIVERSAL FILTER.

TAKE pleasure in sending you a cut of my Universal Filter. I use it as follows:



For varnish or albumen I use an ordinary tin funnel; I first solder a tin band one inch wide on the top, then make the adjustable top of tin to fit in loosely; this consists of another band two inches deep. Spread a piece of cotton flannel over the narrow band on the top of the funnel, with nap side up, then crowd in the wide band, which will draw the flannel snug. The filter is then ready. For varnish, wet the flannel with alcohol; for albumen, use a piece of muslin if the flannel does not filter fast enough.

You will at once see it will do all kinds of straining or filtering, as anything, from the coarsest of wire sieving to the finest muslin, can be used.

I have used it for collodion, varnish, cream, milk, fat, paint, albumen, honey, and a host of other things I will not mention.

S. L. PLATT.

MARENGO, ILL.

Mosaics for 1879, Practical Printer, and Colorists' Guide, to one address for \$3.60.

#### PHOTOGRAPHIC NEWS.

THE manufacture of straw paper has been recently improved on. The straw is first heated, as is known, with caustic soda, under a pressure of four atmospheres, so as to dissolve the silica which it contains, and a certain quantity of coloring matter. After being thus treated, there still remains in the straw a considerable quantity of coloring matter that a number of manufacturers have been accustomed to destroy by means of chloride of lime. There is, however, a great advantage in first treating the straw with soap, that is to say, to boil it with a solution of soap, as in this case much less chloride is required for the bleaching. Quite recently Mr. Dieterich has stated that ammonia increases the dissolving action of the soda. He has invented a rapid process to obtain the straw pulp: a bath is prepared with 75 kilos (165 pounds) of caustic soda, 71 kilos (161 pounds) of black soap, 15 kilos (33 pounds) liquid ammonia, weighing 0.97 (speeific weight), and 1000 to 1500 litres (264 gallons to 396 gallons) of water, for 500 kilos (1102 pounds) of straw. After four hours of boiling the mass is removed and bleached with from 50 to 60 kilos (132 pounds) of chloride of lime, with which it is allowed to remain in contact for three hours, 10 kilos (22 pounds) of sulphuric acid being added towards the end. The result is very good; the straw is white and brilliant. It is partially dried in the filtering pumps, and is then pressed into cakes. The best results are obtained from rye straw. If ebullition is continued too long, the straw becomes hard and dark colored, and unfit for the ulterior treatment.—Dr. Phipson, in Paris Moniteur.

The Virginia Chronicle tells of a green-looking couple who called at a photograph gallery to have their pictures taken. The bridegroom took the photographer aside and said: "Sal and I got hitched down at Carson last Monday. Now her folks go a good deal on style, and they live in the States. They never saw me, and if I send my mug back East they'll be dead agin me sure. I'm a dar'n sight better than I look, and when people come to know me they vote me a brick. Now what I want is to get some

good-lookin' man to sit with Sal for a picture. Will you stand in? She's willin'. Them big side-whiskers of yours'll catch 'em sure, and create harmony. You look like a solid capatilist, and they'd take me for a petty-larceny thief." The photographer "stood in."

I am about to offer to photographers a bit of good, practical, common-sense advice, based upon a bit of recent experience. The subject of my photographic effort on that occasion belonged to that useful quadrupedal family, one of whose members has long been celebrated in runes, if not in rhymes, as having, by the application of its horn, "distort to realms ethereal," borne the braggart hound that worried, etc. In short, my subject was a cow with a crumpled horn. The animal herself, including the head and the crumpled horn, I managed to portray with the greatest ease; but not so the tail of the patient bovine-it persisted in indulging in pendulum-like efforts to wage ineffectual war upon sundry flies. I gave it up as a bad job, and left the field with four negatives of "crummie" minus the tail. thought occurred to me-the caudal appendage of one cow bears a marked resemblance to that of any other animal of the same family. The result of a friendly interview with a butcher, was my eventually obtaining several negatives, of various dimensions, of bovine tails, which, like the cloud negatives of a landscape photographer, could be pressed into service when the original tail had been indulging in oscillatory movements during exposure. The idea is applicable to horses and other animals as well as to cows. The offending member in the original negative may either be "stopped out," and the other printed in by a subsequent operation; or, better still, it may be removed entirely by means of a strong solution of iodine in cyanide of potassium, and the film containing the supplemental tail attached, by transparent cement, to the negative. It requires care, but it can be done, and that, too, most effectively. -British Journal.

THE Wochenblatt gives the following method, by Herr Pellett, of producing drawings upon a white ground intended to

be either strengthened or colored by hand. The process is based upon the reduction by light of ferric chloride to ferrous chloride. The latter salt is not affected by a solution of ferrocyanide of potassium, while the former is immediately turned blue.

The paper upon which the print is to be made is sensitized by being dipped into a solution of

Water, . . . 30 grammes.
Ferric Chloride, . . 3 "
Oxalic Acid, . . . 1.5 gramme.

The oxalic acid may be replaced by an equivalent quantity of any other organic (especially vegetable) acid. If the paper do not contain sufficient size, a little dextrin, isinglass, or some similar material may be added to the bath. The paper is then dried in the dark, and may be kept without losing its sensitiveness, for an indefinite period.

In order to reproduce a drawing, place it upon a piece of dry sensitized paper, and place a sheet of glass above that again. In summer an exposure of about thirty, and in winter of from forty to seventy, seconds in the sun will be sufficient. In the shade, from four to six minutes, and, when the sky is dark and overcast, from a quarter of an hour to forty minutes, will be required. Electric light acts very powerfully, the exposure varying according to distance and the density.

After the exposures dip the paper into a solution of eighty grammes of ferrocyanide of potassium in five hundred grammes of water, which immediately turns all the unreduced parts of the ferric chloride blue. The picture should then be well washed and fixed in the following solution:

CELLOIDIN IN PLACE OF COLLODION COTTON.—Ever since the law against the transportation of collodion cotton in Germany, the manufacturing chemist, E. Schering (Stockholders' Company), of Berlin, has endeavored to manufacture a product for the making of collodion, and to the transportation of which no objection can be made. He succeeded finally by putting a product

in the market, the so-called "celloidin," which is free from all organic substances, and apt to form compositions with nitrie acid-dextrin, xyloidin, nitromannite, etc., for instance—and act injurious on the silver bath. The celloidin is sold in nearly transparent plates, like gelatin; it is not combustible, burns like paper, and is converted into coal if heated in a test-tube. Its specialties allow it to be transported by mail, railroad, and ship. Its principal advantage over collodion cotton is, however, that it produces at once a very clear collodion for immediate use, free from any precipitate or other impurities. Each plate weighs about 200 grammes, and contains about 40 grammes of celloidin. One plate mixed with a mixture (at one's option) of alcohol and ether, so that the whole weighs 2000 grammes, is a two per cent. collodion; 1333 grammes a three per cent., and 1000 grammes a four per cent. collodion. If the brutto weight of one plate is less than 200 grammes while dried, the capacity will anyhow be the same, as it always contains 40 grains of celloidin .- Notizen.

THE Amateur Society of Liverpool had fixed upon the 25th of July for its country excursion. Thunder-storms have been quite frequent in England, and although accidents occasioned by lightning have not been very numerous, the storms have exceeded threefold the average number. The amateurs started in a handsome wagonette, drawn by four fine horses. Towards halfpast one the rain, which had threatened all the morning, commenced to fall in torrents. Several of the members abandoned the wagonette, and returned to their homes; the others, more courageous, continued their journey. Some time afterwards the rain fell with such violence that several others decided to seek shelter, and but a very small number remained, and these did not seem disposed to stay much longer. At this critical moment, the Secretary of the Society, Mr. Forrest, offered a prize, to be given to the one who, on that day and under these trying conditions, would obtain the best negative on a dry plate. Mr. Forrest doubtless supposed that his prize would not be adjudged, but a few leagues further on the weather changed, the sun appeared, some negatives were at once obtained on plates that were really dry, the rain having entirely ceased, and the Secretary will probably be obliged to divide his prize among several competitors equally excellent.—Dr. Phipson.

#### OUR GOLD MEDAL PRIZE OFFER.

SOME of our foreign subscribers think it "perfectly absurd" and "unfair" to expect any of them "to compete for a medal offered in September, and the competition to close in only ten weeks thereafter."

Says one, "I would not, for one, undertake to get up anything in so short a time. If I try, it will be with the sincere hope of winning the prize, and I don't want to send you anything that I think won't bring me back the medal." This is plucky, to say the least, and the judges advise, and most of those who have already sent in their negatives agree, that the time be extended until March 15th, 1879. We therefore repeat the offer made in our September issue, page 284, and call upon all, at home and abroad, to compete for this medal. When making the first offer, we did not think that it would give some of our friends abroad only two or three weeks to prepare. We are glad to see the earnestness evinced by their complaints, and now we shall see if any of the complaining ones are successful or not. We look for some fine things.

#### HEARN'S PRACTICAL PRINTER.

SECOND EDITION.

A FTER a number of delays, necessary to make the work more perfect, and for many reasons unavoidable, the publisher has pleasure in announcing that the Second Edition of Hearn's Practical Printer is ready, and nearly one-half the edition is now gone.

It will not be forgotten that this is the only work ever published devoted exclusively to photographic printing. The author, himself a printer, earning his daily bread by that branch of our profession, feeling that not enough consideration and care

were given by employers and employees as well, to the production of photographic prints, first mastered the art himself, and then, hoping to elevate it, placed his experience on record for the good of his craftsmen, accompanying it by an example of his own work—a good photographic print. Success attended his first edition, 1500 copies going off in all directions and to all countries quickly, when a second edition was demanded. And as new ideas and the results of new practice are always expected in a new edition of a work, its issue in this case had to be delayed until after more experience and experiment could be had.

These finished, we have a handsomer and better book, full of new and useful hints. The print this time is of the "Panel" style, from negatives by Mr. G. M. Elton, Palmyra, N. Y., and very handsome.

The paper and binding are as fine as can be, and the old matter has been mainly rewritten, and several new chapters added, giving all the latest wrinkles and dodges in plain and fancy printing—things which every progressive printer should know. We have already, in our September number, given the new chapter on Fancy Printing, which is a fair example of the character of the whole work.

The time has now been reached when our patrons will no longer accept poor prints. Not only must they be proofs from the negatives, ever so good, but they must be artistically and tastefully printed. The way to secure such results is to follow Mr, Hearn's "practical" directions. The last chapter, on "Glace Printing," is alone worth the price of the book, \$2.50.

#### PHOTOGRAPHIC MOSAICS, 1879.

WE come to you as usual with our little annual, which is now all ready, and which is even fuller than ever of gems of photographic thought and instruction. We do not believe it ever had its equal. Its contributors seem to have exceeded themselves. As a whole their articles give evidence of more real thought and feeling for our art than we have heretofore known. We all realize that "there is something the matter with business," and the

parties alluded to discuss it freely, and strive to give hints which tend towards the way out. In addition to several such articles, we have many more that are fresh and new, of a most practical nature. We shall show no partiality by mentioning them. In our advertisement a full list of the subjects is to be found, and to this we refer you. Lightning and lightning processes are plenty. Emulsion is not forgotten. The articles as you see must necessarily be short, or we could not put so many into one hundred and fortyfour pages, and that there are so many is a proof of the wonderful cheapness of the book, and this cheapness carries it all over the We do most earnestly commend Mosaics, 1879, to our readers, not because of our pecuniary interest in its sale-for after all that is small-but for the real good it will do them.

Our crowded space prevents our giving many extracts from its pages this month; and ere our next doubtless you will all have it.

Since, however, our old friend, Charles Waldack, Esq., our old teacher as author of the well-known "Waldack's Treatise," has taken up the pen again for Mosaics, we extract from his article his formula for quick-acting collodion, referring our readers for further details and his excellent remarks to page 121 of Mosaics for 1879.

#### Plain Collodion.

Alcohol, . 4 litre (250 c.c.) (10 ounces.) Pyroxylin,\*. 10 grammes (300 grains.) Shake and add

Ether, . . ½ litre (500 c.c.) ( 20 ounces.) Shake until complete dissolution, and let settle.

#### Indizing Solution.

Alcohol, . 1 litre (250 c.c.) ( 10 ozs.)

Iodide of Ammonium, 10 grms. (300 grs.)

Bromide of Ammonium, 4 " (120 ")

Filter. To three parts in volume of the plain collodion, add one part of the iodizing solution the day before using. In hot weather do not prepare more than you want to use in the next two days. The ripening process, if pushed too far, is detrimental to sensitiveness.

Silver Solution.

Fused or Recrystallized

Nitrate of Silver, . 90 grms. ( 3 ozs.) Distilled Water, . . 1 litre (36 ")

Use as good water as you can get; distilled, or water from clean and pure ice.

Filter. Keep one-fourth of the solution apart, and to the rest add a couple of crystals of iodide of potassium dissolved in water. Shake and filter again in the light. If any organic matter should be present it will combine with the precipitated iodide. Throw in your filter about one gramme (30 grains) of nitrate of baryta. After filtration of the iodized part, add the one-fourth which has not been iodized, and acidify with one drop of C. P. nitric acid.

The nitrate of baryta is added for the purpose of preventing pinholes. How it acts I cannot explain; certain it is that it does have that effect.

#### OBITUARY.

So soon again are we called upon to notice the death of another bright light in our art. Our readers have already seen the tribute paid to his memory on our first page, by one of his intimate friends. What more can we say? There are given the details of the shocking death of the beloved President of the National Photographic Association, WILLIAM H. RULOFSON, as sudden as it is horrible to contemplate.

Words can but inadequately express the sadness and sorrow which this announcement caused, when telegraphed all over the country, on the morning of November 3d, for Mr. Rulofson was personally known by at least two thousand of our fraternity, who were privileged to meet him at our National Conventions held in Chicago and in Philadelphia.

At Chicago, amid the enthusiasm of the assembled thousand, he was elected president, and at once gave evidence of his earnestness in behalf of the Association, by taking up the burden of debt which was crushing it, and by his earnest effort and personal donations it was absolutely removed. We all remember the magnetic influence he had when speaking, and how ready he always was to suit the action to

<sup>\*</sup> The cotton I used was Poulence & Wittmann's. That of Anthony's and Hance's or Peter Parys', are fully up to the mark.

the word. A gifted speaker, an active worker, a genial companion, an agreeable business compeer, his place cannot soon be supplied, and our loss is great. We mourn his death, not only as a blow to our art, but as a close personal bereavement.

At Philadelphia he endeared himself still more closely to us all, by his oneness of demeanor to all, and his ready espousal of all which concerned our mutual welfare. He was an exceptional man, and we cannot hope to express our feelings over his death. We put it upon record, assure his family of our warm sympathy, and rest upon time to assuage our mutual grief. Let us hope that this dark stroke may result in good for the reuniting of our now depressed National Photographic Association.

We append the following action of the San Francisco Photographic Art Society on the death of W. H. Rulofson.

"A meeting of the Photographic Art Society of the Pacific was held this forenoon, in Bradley & Rulofson's gallery, to take action in regard to Mr. Rulofson's death. Robert A. Marden, President, occupied the chair, and the attendance included nearly all the leading photographers of the city. In stating the object of the meeting, Mr. Marden said that the deceased had done more than any other gentleman in the business to elevate the photographic art on the Pacific coast. It was, therefore, fitting that the Society should take some action in the matter, as Mr. Rulofson was one of its most active and distinguished members.

### "RESOLUTIONS ADOPTED.

"On motion, it was resolved that Jacob Shew, G. D. Morse, and H. W. Vaughan be appointed a committee to draft appropriate resolutions, and after an absence of a few minutes they reported the following, which were unanimously adopted:

"Whereas, William H. Rulofson, whose talent, perseverance, and industry gave him great prominence in the ranks of the photographers of the Pacific coast, lost his life on the 2d instant, by falling from the roof of his gallery, and thereby deprived the fraternity of one of its most useful and earnest members; and

"WHEREAS, The melancholy event, apart from its direct bearing on the profession, strongly appeals to the affectionate sympathy of all who knew him as a business man and in his private relations:

"Resolved, That this Society deeply feels the loss of its departed member, and desires to express, in the most emphatic terms, its sense of his great worth, as a member of this Society, as a friend, and as a citizen;

"Resolved, That it is largely owing to the talent and energy displayed by the deceased, that photography on the Pacific coast has attained the commanding position it now occupies, and that it will be long before the important place held by the deceased will be again worthily filled;

"Resolved, That the deceased member, by his generous impulses, manly qualities, business integrity, and warm friendship, endeared himself, not only to the members of this Society, but to all who were brought directly in contact with him:

"Resolved, That the members of this Society, out of respect to the memory of the deceased, close their several places of business on the day of the funeral, and attend it in a body, and all persons engaged in the business be requested to join on that occasion;

"Resolved, That the Society expresses its sincere condolence to Mrs. Rulofson and members of the family of the deceased in their sad be-reavement, and that a copy of these resolutions be forwarded to them, and another be furnished to the National Photographic Association, of which he was the President.

"On motion of Mr. Vaughan, it was resolved that copies of the resolutions be furnished to the daily city newspapers for publication.

### "THE FUNERAL.

"The Chairman said that the funeral would take place from the Odd Fellows' Hall, at two o'clock to-morrow afternoon, and, on motion of Mr. Rieman, it was resolved that the meeting adjourn to meet at half-past one o'clock in the parlors of the Cosmopolitan Hotel, to attend the funeral.

"In answer to a question, Mr. Rulofson, Jr., said that the Odd Fellows' Society had made all arrangements for the funeral, but the meeting appointed Messrs. Morse and Vaughan as its pall-bearers.

"The meeting then adjourned."

Photographic Mosaics, 1879, is ready. Fifty cents.

### VOICES FROM THE CRAFT.

THE SECRET OF IT.

WILL give you a profound secret. When you want to evoke lightning of the photographic persuasion, simply put your ordinary chemicals in clean working order, and strengthen your developer as much as the condition of your chemicals will bear, and you have it in a very small nutshell.

S. V. Allen.

### A WONDER TO ME.

It seems strange to me that so many photographers of merit will give their influence to process peddlers, to enable them to swindle other photographers out of their hard-earned dollars. You have proved yourself a true friend to the photographers, and I hope it will bring you lots of new subscribers for 1879.

E. D. Ormsby.

### BLISTERS.

I HAVE so often been benefited by the "little dodges" published in your almost invaluable journal, and I think, too, every photographer, who can by any means add to the general knowledge, should do so; but, at the same time, he should endeavor to be sure of what he states. I have what has with me (I will say has), proved an infallible prevention of blisters, and adds very much to the richness and depth of tone. I will state briefly my manner of working: I use the extra brilliant paper all the time. Some eight or ten hours before sensitizing I hang my paper in my fuming-box, setting a pan of warm water (nearly boiling) under it; shut it up, taking it out only as I sensitize. I use my bath sixty grains strong, well saturated with chloride of silver, slightly alkaline; float two minutes, more or less. I usually sensitize in the evening, dry some of my paper, and fume a part of it all night, and it does not turn yellow, but prints a deep, rich, gray tone; turns red quickly in acid water. I tone with the old acetate bath; nothing the least new or novel in it, but you cannot blister paper, so far as my experience goes, that has been steamed in a close box for hours, till it is very limpid; it takes yery kindly to the silver solution. I would say to all, try this, no matter whether you are troubled with blisters or not. Note the effect; it is no trouble; in fact, saves trouble. Should be happy to have an expression as to benefit or otherwise from this little dodge.

P. S.—I inclose one print for you to see.

J. S. Young,

Rome, Ga,

### Mr. Gihon.

I inclose you \$1.50 for Gihon's Colorists' Guide. I regretted very much to learn of the death of Mr. Gihon, although I did not know him personally. I miss him from among the best of contributors to your excellent magazine, as all his articles were written for all to understand. I extend my sympathies to his family, and regret that I cannot do so in a more substantial manner.

GEORGE M. BRETZ.

A few more copies of Mr. Gihon's book are left.—Ep. P. P.

### AN EVIL TO BE FEARED.

With a full knowledge beforehand of what will be said of this communication, by those who may find it distasteful, I yet beg to raise my voice against the indecencies found here and there in the profession. There is now being sold, in large quantities, in various places, a certain copy diverted from its original intention, of which it is enough to say that the initiated are having it multiplied and privately exhibited as one of the best things in obscenity ever published. With no disposition to turn preacher, this writer must yet be allowed to say that the distribution of such prints among young men is a direct promotion of vice, and whoever aids such publition is an abettor of infamy.

Every worthy man will say of a publication having the present intention of this one, which, if it had its full swing, it would drag our profession into the dirt: "Ashamed be he who thinks not evil of it." T.

The picture alluded to by our correspondent was produced by an accidental pose at the studio of one of our best city photographers, who has personally assured us of his regret that such a picture should leave his place of business. But, although farge orders had reached him from home and abroad, the negative was promptly sup-

pressed, though not soon enough to prevent the caterers to obscene taste from copying the few prints sold. We believe we can say, truthfully, that not a single *reputable* American photographer knowingly allows obscene pictures to be produced at his establishment.—Ed. P. P.

### MY COMPASS.

PLEASE to send me the book, Studies in Artistic Printing, by C. W. Hearn. Find inclosed \$6.00, \$3.50 for the book and \$2.50 for the Philadelphia Photographer, for my subscription; as I could not be without the Philadelphia Photographer. It is like a compass to me, and keeps me always on the right course. I should get lost and get in the dark, if I would not get the Philadelphia Photographer. It is the star of photography, and all photographers should read the Philadelphia Photographer, if they do not want to be shipwrecked.

M. F. FREY.

### CORRECTION.

IN Mr. Black's "Homespun Lightning Process," given in our last issue, there was an error or two, which occurred from our not receiving back the proof from him before we had to go to press.

The formula should read, corrected, as follows:

### NITRATE BATH.

First put the amount of silver to be used into an evaporating-dish, and allow it to melt. Then (while it is in a molten state) add to each ounce of silver about three grains of the following salts:

### " Bromo-iodide."

Iodide of Lithium, .	10	grains
Iodide of Ammonium,	30	"
Iodide of Cadmium, .	2	"
Bromide of Ammonium,	20	"
Bromide of Cadmium,	10	44
Bromide of Potassium,	10	44

Put the above into distilled water, in a clean evaporating-dish, and evaporate to dryness; then let cool. Dissolve the silver in distilled water, forty grains to the ounce, and sun well. To a bath of one gallon, add half a drop of C. P. nitric acid.

### COLLODION.

The amount of bromo-iodide mentioned is sufficient for twelve ounces of collodion. Dissolve in alcohol and other, equal parts in winter, but in summer there should be a little more of ether used. Cotton to suit your taste, say five grains to the ounce.

### DEVELOPER.

Dissolve in 60 ounces of water 4 ounces of protosulphate of iron. When all is dissolved, filter clear into a clean bottle. To use, pour out 16 ounces; add 1½ ounces of acetic acid and ½ ounce of alcohol. Any one trying the above formulæ, if they are at all careful, will find it will give good results. Should negatives lack intensity they can be strengthened after fixing, and washing well with the following: Pyrogallic acid, 1½ grains; citric acid, 1 grain; water, 1 ounce. The collodion should be filtered after adding the bromo-iodide through filter-paper, and also after adding the cotton. Use a collodion filter.



- 1. What is the cause of tintypes having a glistening, metallic look upon varnishing them?
- 2. What is the cause of negative varnish destroying the film, leaving it in fine parallel lines, which are enten clear away. I added water until the varnish was spoiled, and still it was not cured. C. A. K.

To Several Inquirers.—Borie and boracic acid are the same thing, and retail in this city at ten cents per ounce, or seventy-five cents per pound.

To Zenos.—An excellent "quick" process was given by Mr. E. P. Libby in Mosaics, 1875, pages 39 and 40. Had it come with a Lambertine "furore," some one might have tried it and found it good.—Sphynx.

### SOCIETY GOSSIP.

PHOTOGRAPHIC SOCIETY OF PHILA-DELPHIA.—The stated meeting of this Society was held on Thursday evening, October 3d, 1878, Mr. John C. Browne in the chair.

The minutes of the last meeting were read and approved.

Mr. McCollin, Secretary of the excursion party, reported that he had received the following communication:

Friday Morning, June 21st, 1878.

MR. THOMAS H. McCollin,

Secretary and Chairman of Medal Committee.

DEAR SIR: I decline to receive the award of excursionists of the Philadelphia Photographic Society, to which, under the selection of the committee, last evening, I would be entitled. The preparation of the negative not being entirely my own, I feel that I should not be entitled to it, and would thank you to allow of no further action by the committee.

Yours truly,
WILLIAM HACKER.

The following was then adopted:

Whereas, The award of the committee of judges has been declined by Mr. Hacker,

Resolved, That no new award be made, and that further action in the matter be indefinitely postponed.

The following gentlemen were nominated for the annual election in November: President, Mr. Ellerslie Wallace, Jr.; Vice-Presidents, Messrs. Joseph W. Bates and John Carbutt; Treasurer, Mr. S. Fisher Corlies; Recording Secretary, D. Anson Partridge; Corresponding Secretary, Dr. Seiler.

Mr. Sartain recommended tracing-linen, stained with a non-actinic varnish, as a substitute for orange glass for dark-room use.

Dr. Seiler remarked that oiled silk was employed for this purpose in Germany.

Mr. Browne said that he had used heat in the development of washed emulsion plates with marked advantage. A plate which was so badly underexposed, as to give no image with the ordinary development, was, by careful heating over the naked flame of a candle, developed into an excellent negative.

What was most remarkable in this case was, that while the plate with the developer on it was exposed for some time to actinic light, no trace of fog was to be found on the negative.

The meeting was shortly after adjourned.

D. Anson Partridge,

Recording Secretary.

### GERMAN CORRESPONDENCE.

The Great Paris Exhibition.

SPOKE to you in my last correspondence about the Paris Exhibition, and generally about the French department. The French Photographic Society exhibits a series of pictures representing les decouverts successives de la photographie en France. It is surprising to see among them two pictures of the moon, which are not of French origin, but which were made by your friend and fellow-countryman, Rutherfurd.

If France does not furnish the best moon pictures, it certainly furnishes the best pictures of the sun. The latest ones were made They were made instantaby Janssen. neously, by sixteen times enlarging, by a telescope, so that they show the finest granulations. Besides this, Janssen enlarged the original plate sixteen times, which gives a view of the sun without equal. However flattering it may be for Rutherfurd to see his pictures paraded in the tableau of the French Society, I think it had been better to take Janssen's pictures in, which I admire all the more, as Janssen's studio, in Meudon, near Paris, is of a very primitive nature.

While mentioning the progress of photography, I must not forget to consider also the helio-chromos produced with negatives from nature, which are neither sensitive for red nor green nor violet. These pictures are exhibited by Ducos du Hauron and Cross. In consideration of the fact that these investigators commenced their experiments much sooner than Albert and Obernetter, of Munich, their pictures are very poor in comparison with those of Albert and Obernetter. The French products do not make any better effects than inferior chromos. Ducos du

Hauron has published his method in a little pamphlet. He uses a collodion dyed with eösin, and commits the error of using it for the manufacture of all three negatives. This is an error, because the dyeing of the collodion is only justified when it is to be made sensitive for rays which are absorbed by the dye. Eösin only absorbs green rays; therefore it can only produce a collodion sensitive for green rays. This certainly accounts for the inferiority of the work, which cannot at all give the lie to the theory. Though it is a fact that red, blue, and yellow, properly mixed, can produce all colors, the results are never too nice, which is amply proven by chromo-lithography. If it were so easy to make a good chromo with only three plates, one certainly would not use more. practice has proven that this is not sufficient for a good work; good enough for Jahrmark's work. In order to prevent this, instead of using only three stones, one takes sometimes thirty, and gives with every one only a slight amount of color, somewhat like the proceedings of water-color painting. In order to make a sky in a watercolor painting rich and transparent, it cannot be made with one coat of blue, for instance. First a very thin coat is given; after drying, a second one, and so forth, seven or eight times, until the necessary intensity is reached. Enough now of a method which is still in such a state of infancy that it is difficult to assert whether it will have any future or not.

More interesting to everybody will be a process which menaces opposition to the silver process. This is the carbon process. The Exhibition is undoubtedly a witness of its progress. That America has not exhibited anything in this line, is maybe due to the disagreeableness to pay a high license before using it, and also to the disadvantageous effect the summer months of that country have on the process.

In Philadelphia, only Germany and Austria had exhibited carbon prints. Now they are quite common in the French department. Liebert uses the same exclusively for portrait work. I spoke already of Braun, of Dornach, and have to add still Frank, Rousseau, Petit, and Reutlinger, who exhibit silver pictures alongside of pigment

prints. England is represented by only four exhibitors of carbon prints, whilst the Belgian exhibits are composed nearly exclusively of the same. Switzerland exhibits carbon and silver prints in equal proportion, and Portugal is represented by an amateur, Carlos Relvas, who not only distinguishes himself by his excellent work in carbon printing, but also by many other curious things.

I have already spoken about Braun's large pictures two metres high. The same is surpassed by a picture of three metres (ten feet) in height, by Barnaert pere, of Gand, representing the Cathedral of Ypern. This is certainly an enlargement on Monekhoven paper. According to all appearance, a negative on paper has been made first, which has been transferred to the carbon paper. It may be a combination print. I must not forget to mention a very good carbon negative by Carette; children in life size.

Russia has exhibited here in the same manner as in Philadelphia. Nothing is added, with the exception of a few names among the list of exhibitors. Everything else is so exactly the same with the Philadelphia exhibits, that one cannot help thinking that the frames were sent directly from Philadelphia to Paris. The well-known bust portraits on dark ground, which are here named "Russian pictures," seem to have gained some admiration. The same are not only manufactured in Russia, but also in France and Germany. In order to make them, a mask having about the shape of the outlines of the picture, a little smaller than the latter, is put between the lens and plate. Thus the corners of the negative remain transparent, and print dark. Of other Russian exhibitors, Scamoni is to be mentioned. His work, heliographs in halftones, belong to the finest of the kind. Nothing more is known about the manufacture of the same but what Scamoni has published in his well-known work. Equally interesting, but unknown to me as to the manner of producing them, are his photohyalotypes in half-tones. A very peculiar kind of photograph in the Russian department is the silver work of Klebuikoff to be mentioned. These are photographs on silver plates, apparently transferred collodion pictures having the effect of enamels.

Italy did not exhibit near as well here as in Philadelphia. Some prominent cities were scarcely represented. Among the Venetians, only Brusa exhibited lichtdrucks of architecture. Florence was better represented by some good reproductions of oil paintings after Fratelli Alinari. Rome exhibited architecture by Allessandri.

Sweden and Norway showed some progress since the Philadelphia Exhibition. Switzerland maintains its old reputation in photography. It has very good portrait workers, and in regard to landscapes, Tarschler Brothers, of St. Fiden, and Charnaux, of Geneva, are well capable to face the oppositions of foreigners. Switzerland is also the home of the well-known lightning process, originally invented by Boissonas, of Geneva.

Besides the firms mentioned which were very respectfully represented in Paris, there were still Garign, of Geneva, with excellent landscapes, large size; Guler, of Cairo, with smaller ones, and Linot, of Wontershen, with carbon prints, among which were some colored after the method of Braun, before described.

England's photographic department was more of an altogetherness than the others were, and therefore the effect also was a more efficient one. The sole objection I have to the display is hidden in the position it is in. The light penetrates through windows of stained glass. However much I like stained-glass windows, I do not think they are fit for giving the right light to photographs or paintings.

England occupies a peculiar standpoint in portrait photography. It has given birth to men like Robinson and Rejlander, who died several years ago, and who have gained great merit in regard to the asthetics of our art; also Mrs. Cameron, who is unique in the peculiarity of the understanding of her patrons. We owe to her, and also to Rejlander, more studies than portraits, and Robinson likewise has preferred to work in genré pictures and photographic compositions. This present exposition is not poor in them. The principal attention is drawn to the pictures, "When the day's work is

done," and "Preparing spring flowers for the market." This kind of picture—compositions as I call them—have never met with any success on the Continent. Among the peculiarities in the portrait line I still mention Van der Wyde's pictures by electric light. They are a real novelty.

Faulkner makes a great show with his characteristic pictures of children. Some of them are enlarged on red carbon sheets. The pictures of the London Stereoscopic Company are remarkable in regard to the variety and number of their production. The work is generally well done. There is scarcely a celebrity of England, be they in Parliament, in the pulpit, on the stage, or elsewhere, not represented by the London Stereoscopic Company. Other good portraitists are Slingsby, of Lincoln, Bardown, of Jersey, and Lombardi, of London. The principal strength of the English, however, is not the portraits, but the landscapes. Here they occupy the first rank among all nations, and have done so in every exhibi-In the English department of the Philadelphia Exhibition, Payne Jennings, of Dublin, was the prominent exhibitor who caused quite a surprise with his landscapes. His exhibit is much larger in Paris, and his location also better, so that his mastership comes more prominently into effect. There is such a richness in tones that the absence of colors is not at all perceivable. To all this is attached a sublimity which only the brush of the artist is capable of rendering. In regard to finish they are perfect. They are cabinet pieces, in which the most wonderful sceneries of nature are represented. The clouds are printed with separate cloud negatives, and it seems to be forgotten sometimes to cover the landscape. The consequence is, that in some of those pictures the clouds go in the summit of the mountains or the roofs of houses, and produce thus a disagreeable effect, not at all in harmony with the rest of the picture.

After Payne Jennings comes Vernon Heath. He exhibits enlargements of land-scapes which were already exhibited in Philadelphia, and which represent respectable work. Pictures of smaller size, representing scenery of Switzerland and America, are exhibited by Norman and Brown-

rigg. Bandoux has transparent carbon pictures on glass, portraits as well as land-scapes. The carbon process, par excellence, is represented by the Autotype Company, who merit, indeed, great praise for the development of this process. Alongside of their carbons are lichtdrucks, which are all the more remarkable, as lichtdrucks are a rarity among the foreign exhibits of the Paris Exhibition. Austria sends but few of them. If Germany had exhibited, they would have been counted by the hundred.

I expected much of the dry-plate process in the English department, but only found Warnerke, who exhibited very excellent negatives on his negative paper, and transparent glass positives after the same.

After a fortnight, the great International Exhibition, of which I have given a short photographic sketch, will be closed. When will we have another one?

Truly yours, H. Vogel.

BERLIN, October 28th.

### FRENCH CORRESPONDENCE.

THE general reunion for November, of the Photographic Society of France, took place last night, the 8th instant; Mons. Peligot in the chair. The Secretary drew the attention of the members to the great number of awards which had been carried off by photographers. The Photographic Society of France itself had received a Diplome d'honneur, but its greatest glory is in the awards given to its members. Mons. Peligot had received the honorable distinction of Grande eroix de la legion d'honneur, Mons. Davanne had been decorated as chevalier of the same order, Mons. Poitevin had received the Grand prix (a gold medal of the value of about nine hundred francs), not to speak of the other members, who had borne off gold, silver, and bronze medalsbesides the mentions honorables. This communication drew forth great applause. I, myself, am extremely pleased and contented that Mons. Davanne should have received at last the reward due to his perseverance and devotedness to photography. I know no man who deserved that honor more, and whose nomination will give greater pleasure to all. Mons. Davanne has devoted years and his fortune to the advancement of photography. His Chemie Photographique and his public lectures have popularized the study of chemistry among the trade, and raised the standard of work to a higher pitch than would have been attained without his endeavors. 'Tis also in his private life that he is a gentleman in every acceptation of the word; serviceable to friends and amiable to all, as it appears on his escutcheon. Foreigners who have made it a point of duty to pay him a visit have never had a regret. His countrymen and strangers find him ever wont to give information or advice on photographic subjects; in fact, he is as a book, ever ready to impart information to any who will inquire within.

The Secretary informed the Society that he had received a communication from Le Maire de Chalon-sur-Saône, informing the Society that the town was about to raise a monument to the memory of Mons. Joseph Nicephore Niepce, the true discoverer of the photographic art; that the Maire would gladly enter into communication with the Photographic Society of France, in order that a committee might be formed to raise subscriptions.

It is now nearly half a century since the inventor of photography has been taken from the land of the living, without his native city having thought it necessary to raise a stone to his memory. Why, may it be asked, this neglect? Is it that a prophet is without honor in his native town, as well as in his father's house? Why it is, must be for the honor of human nature buried in oblivion. Let us look only on the good side of the object, and praise the little town for its patriotism, and laud its eitizens for the honor they intend to give to the memory of one of their townsmen, whose discovery has given ease and comfort to many, and has done more to advance liberty and independence than all the battles gained since the beginning of the world. I am certain there are hundreds of photographers on the other side of the Atlantic, who, gaining a livelihood through the admirable discovery of Niepee, would be but too happy to forward their mite as a mark of gratitude to the memory of the man who discovered this useful and beautiful art. I should be most happy to receive any contributions from the readers of the *Philadelphia Photographer*, and I am certain that our mutual friend, the editor, would not object to give a list of such subscribers. I would, then, devote my time to represent the subscribers at the unveiling of the statue in honor of the discoverer of photography at Chalon-sur-Saône.

Some very fine fatty-ink proofs were then shown round; the work of Mons. Pistoja, of Florence.

Mons. le Commandant Faure Biguet presented a little instrument, of his invention, which he has named "iconometer." It is employed in order to find the proper focus lens to cover a certain plate. It is composed of two cylinders, sliding one into the other, like a telescope; in the one end, that towards the object to be reproduced, is a square hole, at the other end is a small round hole containing a little lens. The nearer the lens to the square hole the longer is the angle seen, in looking at the landscape. Naturally, in pulling out the tube, the angle becomes smaller.

I had the honor to make a communication, and an experimental demonstration, of the improvements made in the platinum printing process of W. Willis, Jr., which I did in the following words.

"GENTLEMEN: It is now nearly three years ago that I had the honor to draw your attention, and to make an experimental demonstration before you, of the means of obtaining unalterable positive proofs, by means of Mr. Willis's 'patent platinum printing process.' At that moment the French patent had been purchased by the firm of Poulence & Wittmann, of Paris. At that time it was proposed to sell licenses, in order to give the trade the chance to print unalterable proofs at home. Photographers were not willing to rush in and purchase licenses, fearing, as hypo was used in the washing, that the proofs might prove in the long run unstable, overlooking their beauty and the great rapidity of production. Fearing that this might be a stumbling-block to the success of the process, it was agreed to give me the whole right of the French patent, and form a society to work it on a commercial rate. I therefore

set to work, and had my house raised a story higher, and organized my laboratories in order to print unalterable prints by the aid of this process. During these repairs (I will not here speak of accidents, misfortunes, etc., etc.), the inventor, Mr. Willis, made a great step forward in his process. He found means to suppress the hyposulphite of soda, and to obtain pure whites and blacks without losing anything in the half-tones.

"I have with me a few pieces of paper which have been prepared and exposed under a negative; these I shall have the honor to develop before you.

"In this tray is a hot solution of oxalate of potash; as soon as I shall put the paper down upon it the image will flash out, perfect in all its details; the platinum salt, which it contained, will have been immediately precipitated into a metallic form. I cannot pass over this reaction without making a reclamation in favor of Mr. Willis, Jr. This gentleman has worked and experimented unceasingly with the oxalate of iron, which is, in fact, the base of his process. In 1876 he made me the remark, that the oxalate of iron ought to be a very powerful reducing agent for my dry plates. We then made several experiments, which were partly successful, and sought for a suitable restrainer, and the best means to deliver the salt to customers, and put aside further experiments for that moment; Mr. Willis asking me to keep it a secret until he had improved upon it. This I promised to do.

"In the spring of 1877, Mr. Carey Lea sent a communication to the British Journal of Photography, where, among other salts, he counselled the employ of oxalate of iron as a powerful developer of dry plates. This savant has also the honor of having found a restrainer in gallic acid—"honor to whom honor is due." Mr. Carey Lea was, it is true, to publish his discovery nevertheless. Mr. Willis had long before made public experiments as to the value of oxalate of iron as a developer of dry plates.

"To return to my subject of this evening. Here you see a piece of paper, which, having been covered with a solution of potassic chloro-platinite and ferric oxalate, had been this morning put under a negative and exposed to light. The slight appearance of a

picture, which can be seen, is due to the action of the light, having transformed the ferric oxalate into ferrous oxalate, a most powerful reducer of platinum salts. In order to dissolve this ferrous oxalate, so that it can act upon the salt in question, I pass the proof upon a hot solution of potassic oxalate; immediately, as you see, the proof is perfect. I then wash in water slightly acidulated with oxalic acid, and in three changes of water, and the proof is completely finished.

at I have the honor to inform the Society that, after all calculations made, notwithstanding the high price of the platinum salt, and in order to popularize the process, proofs can be printed at the same price as those in silver salts.

"I beg that the members present will accept, each of them, a proof, in order to put it to any chemical test which would destroy a proof printed in silver salts, and make their observations at the next meeting of the Society."

The great Exhibition is now a thing of the past; but what is sad to see and hear, is the general discontent, not only spoken of, but palpably displayed by the exhibitors. On many of the exhibits one can see stuck up a notice, "Medale refuse." 'Tis, indeed, one thing or the other: too great a belief in one's own merit, or a barefaced, systematic dodge to throw discredit upon the jurors. A charge brought by Mr. Henderson of duplicity, is a very serious one and ought to be sifted out, and must be. The jurors of Class XII were, most of them, honest men, but a rotten sheep is to be found in every flock, and it appears this sheep did in reality exist. The juror for Russia has sent letters to Mons. Liebert, of Paris, letting out certain secrets. Mons. Liebert thought proper to send these letters to a Parisian journal.

All this has caused a little revolution here, and gives credence, to some extent, to the slanderous reports circulated, and appears to bear out the charges which have been made. I hope that the gentlemen of the jury will not take it into their heads that it is to their honor not to give up to public mepris one of their colleagues, who has failed in honor, but, on the contrary, I hope

they will do so, in order that the good may not be tainted by the bad.

PROF. E. STEBBING.

27 Rue des Apennins, Paris, November 9th, 1878.

P. S. An error crept into the formula of Mr. Henderson, in your number for September. It should be

Sulphate of Iron, . . 15 grains.

### OUR PICTURE.

In the picture presented for the study of our readers this month, we have made an humble attempt to illustrate one of Carleton's most touching ballads, "Over the Hill to the Poor-House." With what success, our readers will be better able to judge after reading the quotations from the poem which follow.

Over the hill to the poor-house, I'm trudging my weary way—

I, a woman of seventy, and only a trifle gray—
I, who am smart an chipper, for all the years
I've told,

As many another woman that's only half as old.

Over the hill to the poor-house—I can't quite make it clear!

Over the hill to the poor-house—it seems so horrid queer!

Many a step I've taken, a-toilin' to and fro, But this is a sort of journey I never thought to go.

What is the use of heapin' on me a pauper's shame?

Am I lazy or crazy? Am I blind or lame?
True I am not so supple, nor yet so awful stout;
But charity ain't no favor, if one can live without.

Once I was young an' han'some—I was, upon my soul—

Once my checks was roses, my eyes as black as coal:

And I can't remember, in them days, of hearin' people say,

For any kind of a reason, that I was in their way.

'Tain't no use of boastin', or talkin' over free, But many a house an' home was open then to me; Many a han'some offer I had from likely men, And nobody ever hinted that I was a burden then.

So they have shirked and slighted me, an' shifted me about—

So they have well-nigh soured me, an' wore my old heart out;

But still I've born up pretty well, an' wasn't much put down,

Till Charley went to the poor-master, an' put me on the town.

Over the hill to the poor-house-my children dear, good-by!

Many a night I've watched you when only God was nigh;

And God'll judge between us; but I will always pray

That you shall never suffer the half I do to-day.

Our obliging subject has done much to carry out the desires of the photographer, both in dress, action, and expression, all of which are very important elements in the production of a composition picture.

The negatives and prints were made at our own establishment, and we offer the picture to our readers with thanks for their kindness in combining to prevent us, in these "hard times," when journals are usually discontinued, from ourselves going

"Over the Hill to the Poor-House."

## FRENCH ITEMS PHOTOGRAPHIC.

COUNT COURTEN, who is now devoting his time to oil painting, writes as follows to the *Moniteur*.

"I find photography very useful in obtaining a likeness. This is my mode of proceeding:

"After having obtained a rather weak negative (I remark, in passing, that I have made full-length figures clearly defined with a quarter-plate Darlot without diaphragm), I place it in an enlarging apparatus not exceeding a balf plate, and I obtain from it, with wet collodion, a positive, also, on glass. This transparent positive is placed in a frame or camera, mounted on a stand, which can be turned at will.

"A large lens increases still further the dimensions, and a hinged white reflector completes the apparatus.

"The enlarging apparatus is very simple. It is formed by the quarter-plate apparatus above mentioned, which is reversed and prolonged by a truncated pasteboard cone, having a frame for the half plate. This instrument is placed on a table in the shade, and turned towards the sky. The exposure

is very short and the positives thus obtained very sharp. Any special part of the portrait may be enlarged at will."

Dr. Phipson, in the Paris Moniteur, says: "Our papers state that Dr. Torel has applied a very simple photographic process for registering the purity of large reservoirs of water. The observations of this savant were made at Lake Geneva. It is well known that the waters of this lake are much more turbid in summer than in winter, but that the changes from a limpid state to a turbid one may sometimes take place in a single day. To judge daily the relative transparency of the water of the lake, Mr. Torel makes use of sensitized photographic paper. He plunges this paper to a given depth and during a given time, and he then notes the tint which the paper at that depth has acquired. In this manner he obtains, for each day of the year, a series of photographic tints which represent very exactly the different degrees of transparency of the water. It is easy to understand that light acts more slowly on sensitized paper through muddy water than through clear water. During the month of February, for example, it would be necessary to plunge the paper to a depth of one hundred metres to obtain the same result as at fifty metres in the month of July.

"No doubt it would be possible to apply this same method of observation to the drinking waters of London and Paris, so as to obtain a rapid and an approximate appreciation of their condition of purity. For this it would only be necessary to note the tint acquired in a given time upon a sensitized photographic paper placed at the end of a tube of one metre in length, the other end of which being directed towards the source of light."

The Hygienic Congress lately held its sessions at the Trocadéro Palace, Paris. Among the communications laid before this body, one of the most interesting is due to Dr. Phipson. It treats of divers new products which answer in the most complete manner, it appears. One of the questions submitted to the Congress by the Committee on Organization, on the report of Drs. Gubler and Napias, upon the means of diminishing the danger for workmen who are obliged

to use toxic mineral substances, mercury, lead, arsenic, etc., and the experiments which have been made to replace these substances by others which are harmless. Phipson submitted to the Congress a number of products due to a skilful Liverpool chemist, Mr. Griffiths, which possess these properties. Particular attention was called to a new enamel paint with a silicate base, which may perhaps be successfully used in photographic establishments. With this substance, which is perfectly inert, and of certain resinous preparations, we can obtain enamel colors impervious to water and as easily applied with a brush as ordinary oil paint. These enamel colors dry very quickly on wood, stone, or metal, and impart a surface which is hard, smooth, brilliant, and impervious, resembling porcelain or marble. As this paint is entirely insoluble in water, the surfaces covered with it may readily be washed with soap water. It necessarily follows that this new paint protects the apartments from dampness .- Moniteur.

## GIHON'S PHOTOGRAPHIC SCRAPS.

BY JOHN L. GIHON. SERIES No. 12.

Hints, wrinkles and dodges, and miscellaneous items.
A collection of essays, etc., all pertaining to photography, but difficult to classify.

ROM R. BENECKE.—"Whenever a plate is spoiled by moving of the sitter, I have noticed it is, in nine cases out of ten,



where an ordinary head-rest is used, that the motion was up and down, caused by the ex-

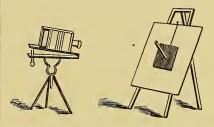
pansion and collapse of the chest during the sitting. The illustration shows a very simple contrivance by which the likelihood of such movement is almost altogether removed.

"The object of the next dodge is to see whether a plan, map, etc., to be copied, stands parallel with the instrument. It is nothing but a straight board about six or

eight inches square, in the centre of which a round stick is fastened perpendicularly. Thus: let the board be of a dark color, and the stick white. Now hold it or



hang it by a string in front of the drawing; let the stick be there, where the two diagonals would cross each other. Next point your camera at it. Now if you see in the



centre of your ground-glass a white circular spot on dark ground, your drawing-board and camera stand correct; if not, that is if you see the picture of this contrivance too high or too low, lower or raise your instrument, and shift it until you see no more of the stick but a white spot. The sketch explains it."

Wet Collodion without Water (C. Sellers).—"It is the custom of many operators to develop in the field, and, after a slight washing, to take the plate home to be cleaned and strengthened. After the developer has been washed off, the plate may be allowed to dry and remain any length of time before cleaning, without injury; but if the iron be not washed off, it will, in drying, crystallize and injure the film, also rust and make yellow stains. If there has been iron enough put on in the first place to decompose all the free nitrate of silver on the surface, the image will be developed, and

the iodide of silver rendered insensible to light by the removal of the nitrate.

"If now, after the iron solution has been poured off, we flow the plate with glycerin, it can be brought into the light, and, if kept in a horizontal position, the film will remain wet for several days, and can be finished at your leisure, as well as if fresh from the camera. Glycerin possesses the valuable property of being very slow to dry (if it will dry at all), is very soluble in water, covers the plate as a varnish, prevents the iron from oxidizing and penetrating the collodion, and destroys all tendency to peel up during washing and clearing.

"A box should be prepared to hold the wet collodion negatives, so arranged with grooves that the plates can be carried in a horizontal position with the film side up."

To Dye Cloth for Tents, Dark-room Windows, etc.—" Make a solution of

No. 1.

Acetate of Lead, . . . 1 ounce.

Water, . . . . . . 1 quart.
and

No. 2.

Bichromate of Potash, . . 1 ounce. Water, . . . . . 1 quart.

"Dip the cloth in No. 1, drain a little (but do not wring it), and dip in No. 2; it takes the color instantly. Rinse slightly, and repeat two or three times.

"If the cloth is new, it should be washed thoroughly, to remove the dressing, before dyeing. Wash or rinse out all loose color, and hang in the sun to dry. This will give a deep, rich lemon color, composed of chrome yellow, and perfectly non-actinic."

"Aux deux Crayons," or Tinted Photographs.—" Make two solutions, viz.:

No. 1.

Alcohol, . . . . 1 ounce.

No. 2.

Water, . . . . 12 " Liq. Ammonia, . . . 15 drops.

"Immerse the albumen prints in solution No. 1 until they take a bright lemon color; then wash them well, and put them in solution No. 2; let them remain until they become of a warm, orange color, and again wash them; mount, and touch up the whites with Chinese or any other good white pigment, and the blacks with india-ink. After touching up the whites and blacks, coat the pictures with the following:

Plain Collodion, . . 6 ounces. Castor Oil, . . . 12 drops.

"The deeper the tint required, the longer the prints must remain in the aloes solution. Too long immersion in the ammonia solution will reduce the tint."—WM. Bell.

For Taking Albumen out of Silver Solution for Printing.—"Dissolve one ounce of gum camphor in six ounces of 95 per cent. alcohol; of this, add to any positive silverbath (that has albumen in it, or becomes black or foul) a few drops at a time, and shake it well; if the bubbles do not break when the bottle is set down, add a little more until it ceases to froth or bubble, then filter at once. If the silver should turn after filtering, add a few drops of permanganate of potash, which will clear it up at once."—John R. Clemons.

# Editor's Table.

Our Advertisements should be read by our subscribers. They show healthy indications of good fall trade, and we believe it is coming. Do not fail to subscribe for the *Philadelphia Photographer* for 1879, and keep posted, and remain cheerful, and we shall all see good days yet.

Mosaics, 1879, is ready, and our old teacher, Charles Waldack, Esq., has taken up the pen again, and has given us a very excellent, clear, and practical article, with formulæ on Quick Working. Read all of Mosaics. 50 cents.

WE publish a lecture on one hundred pictures of the Paris Exhibition, \$1. Free to all buyers of Wilson's Lantern Journeys at \$2.

MESSIS. LONG & SMITH, Quincy, Ill., send us a long list of most flattering praises of their Condensed Lightning Materials. They offer their

materials to the trade without the novel plan of charging for permission to use them. A picture of a saucy looking baby, "made in a quarter second," accompanies the circular.

THE CENTENNIAL PHOTOGRAPHIC Co. were awarded a silver medal at the Paris Exhibition, and another at the Maryland Institute, Baltimore, for their beautiful views and lantern slides.

ITEMS OF NEWS.—The Ohio Trade Journal quotes from our article on Mr. VAN Loo's picture, and gives the distinguished artist a good notice.

Messrs. Rhoads & Shane (W. M. Rhoads and Wn. Shane), 1316 Girard Avenue, Philadelphia, have a real bijou of a photographic studio.

The San Francisco Journal gives Mr. J. PITCHER SPOONER, Stockton, Cal., a fair notice of his productions at the State Fair—35 x 16 feet.

They talk of holding a World's Fair in New York.

We have received a price-list of their excellent chemicals from Messrs. C. Cooper & Co., 191 Worth Street, New York.

Readers of C. W. STEVENS'S advertisements this month will be benefited. Among his best things are "Silver Ink," "Metal Pencils," Backgrounds, and Accessories.

"The Origin and Progress of Carbon Printing," was the subject of Mr. Derham's lecture before the Boston Photographic Association on November 6th. We have no report of it.

You will find an elaborate Index for our current volume in this issue. Consult it.

Directions for using Newton's Emulsion are received from Scovill Manufacturing Co., and we are going to use them.

And now another suit has been won against Wing's patent camera by the New York stocks. dealers; Anthony & Co. nominal defendants. Good.

TESTIMONIALS.—Mr. R. E. ATKINSON says: "If that can be, your journal grows better every month."

Mr. C. Sympson says: "I believe the *Philadelphia Photographer* to be far ahead of any other journal I have read."

Mr. F. Moore says: "I read and re-read your journal, and dare not be without it."

Mr. George B. Rieman, late talented manager at Messrs. Bradley & Rulofson's, has made a connection with the establishment of Messrs. I. W. Taber & Co., San Francisco. We wish him continued success.

PICTURES RECEIVED .- From Mr. GEORGE H.

Johnson, an amateur friend in Bridgeport, Conn., some admirable photographs of camp scenes in the Adirondack region. Mr. Johnson is a great emulsionist. From Mr. F. W. OLIVER, Oswego, N. Y., some excellent portraits, made under his new skylight, which works beautiful effects. From Mr. John H. Henning, Johnstown, Pa., some proofs of his attempts at composition pictures of a little child. He has done well with ordinary accessories; but then there is the sweet little model. From Mr. ALBERT LEVY, New York, some instantaneous marine views from his emulsion plates. Really surprising they are. From Mr. Evans, of Corning, N. Y., some fine panel snow pictures, and other scenes in a hunter's life. The panel size is well adapted for snow pictures. The posing is very natural, and all good. From Mr. Chandler, St. Albans, Vt., some very nicely printed vignettes of subjects old and young.

Mr. Carlos Relvas, Gollega, Portugal, adorns the last issue of *Le Moniteur* with several fine specimens of phototypy.

Messrs. Allen & Rowell, Boston, Mass., favor us with some capital carbon prints. They obtained a silver medal far their carbon tissue and transfer paper at the late fair of the Massachusetts Charitable Mechanics' Association, and are at liberty to sell it to any one who desires it. They ought to tell how to make such prints.

Mr. R. H. Furman, Rochester, N. Y., is one of the select number of photographers who exercises some feeling in his profession. This is proven by some admirable examples of his work now before us, which also show that he not only tries to secure an expression natural and pleasing to his patrons, but, at the same time, picturesque effects. It is very cheering indeed to behold, and we congratulate any photographer who is sufficiently elevated to thus practice his art.

Mr. Henry Rochen, who in many ways stands alone in this country as an artist in style, has recently opened a new establishment at Nos. 77, 79 & 81 State Street, Chicago, which is very claborate, and elegantly and tastefully furnished, as we see by the photographs he has sent us. It occupies the entire fifth story of the three numbers, with a frontage of 60 feet by a depth of 160 feet, and the sixth or studio story  $40 \times 95$ , with the following divisions: Reception-room and office,  $27\frac{1}{2} \times 38$ . A fine five feet wide stairway runs up to the two stories, of which the one is  $24 \times 19$  feet, and 8 feet high, and the larger,

19 x 40 feet, and 10 feet high. Both have one dark-room and two dressing-rooms and accessory-room; also the printing-rooms, having northeast light glazed, are on this floor. Next to the reception-room is an art gallery, 19½ x 45 feet, lighted by two skylights. This gallery is furnished strictly in Renaissance style, where large photographs are exhibited. Attached to the reception-room are two handsomely furnished dressing-rooms, and back of them, but not connected with them, is the large hall in which all the different branches of the finishing, retouching, mounting, framing, sensitizing, and toning, etc., are done in separate divisions.

We wish him great success in his new palace.

"AUTOPLATE" is the name given by Messrs. L. Brown & Co. Philadelphia, to the new methods of photo-mechanical printing adopted by them. We hope to give a more extended notice of their processes in our next—now crowded out.

Avoid Him.—We are informed that a person is travelling in some of our western cities, offering his services to photographers as an instructor, and claiming to be the brother of Mr. A. C. North, Toledo, Ohio. Mr. North declares that he has no brother a photographer, and therefore the other man must be an impostor.

A PRACTICAL AID IN MOUNTING PHOTOGRAPHS.

—We have been shown by our friend Mr. John Carbutt, southwest corner Ninth and Arch Streets, Philadelphia, a guide he has designed for use in mounting photographs, chromos, etc. By its use the exact centering and squaring of the picture on the mount is insured, thereby avoiding the unsightly appearance a picture presents when not square on its mount.

It is very simple to use, and as practical as it is simple. The guide consists of a series of right-angle lines numbered and spaced, by which to register the picture and mount, from a 2 x 3 to 16 x 20 print. It has a scale of inches on the bottom of the sheet, by which the size of a picture can be seen at a glance: it is printed on heavy plate paper and varnished; it will be of great use to amateurs and those using plain or tinted centre mounts. The design is copyrighted. For further particulars see special notice column.

Every one having various sizes of prints to mount, should have this useful article. The price is remarkably low, 75 cents.

THE Amateurs' Handbook of Practical Information, for the Workshop and the Laboratory; containing clear and full directions for bronzing, lacquering, polishing metal, staining and polishing wood, soldering, brazing, working steel, tempering tools, case-hardening, cutting and working glass, varnishing, silvering, gilding, preparing skins, waterproofing, making alloys, fusible metals, cements, glues, etc. Price ten cents. New York: Industrial Publication Company. 1878.

IN Mr. E. H. TRAIN'S article, last month, read dist. water, for "dish" water, and passer by, for "paper by," etc.

To "Toronto." Thank you. Trust us, and send full information for our next. We are watching the thing, and shall be wise.

MRS. LOCKWOOD'S appeal, on another page, is worth careful consideration, though we do not see how a meeting can be arranged for so early.

DEATH OF THOMAS H. POWERS, Esq.-Suddenly, on Wednesday morning, November 20th, of pneumonia, died Thomas H. Powers, Esq., senior member of the firm of Messrs. Powers & Weightman, the world-renowned manufacturing chemists, of this city. As the whole nation already mourns the death of this great and good man, there is but little left to add from such an humble source as this; for you know all we could say. We have personally derived many good lessons from him, inside and outside of business, and have met an individual loss. He was a warm friend of our art; always liberal in his subscriptions when the fraternity at large needed it, and the producer of the large bulk of chemicals used in the profession; and thus his death is a sad loss to us all. He was about sixty-five years old at the time of his death, and was ill only three or four days.

The Artotype Process.—Since our last issue, we have been requested by the gentlemen engaged in selling this process, to insert a fourpage advertisement of it, which we are told will appear in the other journals without question. We have declined to give them place until we could see their claims fully demonstrated. They have agreed to give us the opportunity, and by the time of our next issue, we hope to be able to report fully upon it. If you go wrong, it shall not be of our leading.

It is our impression that no photo-mechanical process is applicable to daily photo. work for small quantities, and it is too much to expect that it should be. Also that HISNIK's process (Photo. Correspondenz, October, 1875), is identical with "Artotype," and if so, it is free to the public. Have patience, and we will find out for you, and give you all you want of it soon.

# Specialties.

ADVERTISING RATES FOR SPECIALTIES.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to clear it of anything tending to deceive or mislead. Stock-dealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2.00, and 25 cents for each additional line, seven words to a line—in advance. Operators desiring situations, no charge. Matter must be received by the 23d to secure insertion. Advertisers will please not ask us for recommendations. \*\* We cannot undertake to mail answers to parties who advertise. Please always add your address to the advertisement.

# WHAT ALL WANT.

The Formulas for making and keeping in order our Rapid Process Chemicals. Photographers in all parts of the country have urged us to furnish these Formulas. In response to these urgent requests, and to accommodate those especially who are far away from Chicago, we have at last concluded to place this much desired and valuable information within the reach of all who are willing to buy one sample lot of our Quickworking Materials.

# For \$10.00

we will send our \$6.00 OUTFIT, namely:

- 1 Quart Rapid Silver Bath.
- 1 Bottle Rapid Collodion.
- 1 "Rapid Developer, enough for ½ gallon.
- 1 " Continuator, enough for 1 pint.

and full printed instructions for making and keeping the Rapid Process Chemicals in order, including directions for using same.

# For \$15.00

we will furnish our \$10.00 OUTFIT (which is twice the quantity sold for \$6.00), and all the printed Formulas named above.

To show the quality of negative produced by the use of these Chemicals, a full-timed cabinet picture of N. C. Thayer, taken in five seconds, will be sent whenever applied for.

Such as have already bought our Rapid Working Chemicals, will be entitled to all the Formulas for making the same on payment of \$5.00.

# N. C. THAYER & CO.

250 & 252 Wabash Avenue, CHICAGO.

# CARBUTT'S GUIDE FOR MOUNTING PHOTOGRAPHS, CHROMOS, &c.

Will insure accuracy and dispatch in mounting photographs. Price, 75 cents each. Can be ordered through your dealer, or will be sent by mail on receipt of price.

J. CARBUTT,

54 North Ninth St., Philadelphia.

For Sale.—An old-established gallery, with or without instruments, at a very low price. Situated in one of the best locations in the city of Columbus, Ohio, where a live man can do a good business. Address

D. S. NEVILLE, Box 649, London, Ohio.

See Seavey's Advertisements, page 332 of October number, and page 364 of November number, of this Journal.

FOR SALE CHEAP.—A photographic gallery in the city of Elizabeth, N. J., desirably situated on the main business thoroughfare; everything pleasantly and conveniently arranged, and in first-class order. Everything on the ground-floor, and good show-window for display.

Address H. L. Moore, 59 Broad St., Elizabeth, N. J.

FOR SALE OR RENT.—One of the best located galleries in New Hampshire. Or a strictly first-class operator wanted to run the same on shares. To one who can command the college work this is an exceptionally inviting field. Address

O. CHILD, Dartmouth Gallery, Hanover, N. H.

A New Robbins Dark-Tent Trunk for 11 x 14 plates; cost \$40.00; will sell for \$20.00. Used once. WILLIAM H. RHOADS,

1800 Frankford Road, Philada.

HALL'S Transparent Crystal, Granite and Negative VARNISHES. Sold by all Dealers.

To any one sending me a three-cent stamp I will inclose my card picture, taken in two seconds (November 15th, 1878), with explanation how it was made.

> ANDREW H. BALDWIN, Dealer in Photographic Materials, No. 1 Chambers Street, N. Y.

FOR SALE .- The undersigned, being poisoned with cyanide, is compelled to sell his gallery, which has been in operation for over seven years. Good prices for work; but one other competing gallery within a scope of eighteen miles. To be sold at a bargain. Address

> W. H. CLAUSER, P. O. Box 272, Delavan, Ill.

See Seavey's Advertisements, page 332 of October number, and page 364 of November number, of this Journal.

FOR SALE, CHEAP .- \$400 will buy the stock and fixtures of the best paying photograph gallery and picture-frame emporium in southern Vermont; well arranged; built specially for the business; dwelling on same floor; rent, \$15 per month. Satisfactory reasons for selling. Apply or address H. OSTERHOUT,

Bennington, Vt.

For Sale.—The opportunity of purchasing a first-class gallery with a low rent, seldom presents itself. This place is fitted with all modern improvements, first-class location, splendid topand side-light, about 10,000 paying negatives on hand; will inventory at present prices, \$2000; will be sold for \$1000 cash. No attention paid to postal cards, but parties meaning business will receive prompt attention by addressing

> "PHOTO.," care N. C. THAYER, Wabash Av., Chicago, Ill.

# Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

WANTED .- A printer and retoucher; one that can do both. Must be a young, single man. Address W. H. WHITEHEAD, 66 and 68 Federal St., Alleghany City, Pa.

REILLEY'S NEGATIVES OF THE YOSEMITE VAL-LEY FOR SALE .- A splendid selection. Proofs may be seen at 116 N. Seventh Street.

EDWARD L. WILSON.

FOR SALE OR EXCHANGE .- A "3 B." Voigtlander & Sons 4-4 tube, a "B." ½ size ditto, nickel plated, and a ½ size Double Swing "Success" Camera Box. All in good order; the lenses good as new. Will sell cheap for cash, or exchange for a first-class breech-loading shotgun. Address B. F. HALL,

Lansing, Mich.

See Seavey's Advertisements, page 332 of October number, and page 364 of November number, of this Journal.

BURNISHER FOR SALE .- 30 inch. A splendid machine; Entrekin's make, and for use as good as new. The only one ever made. Guaranteed to work perfectly. It can be seen and tried if desired. For terms, apply to

Care Philadelphia Photographer, Philadelphia.

# Gihon's Photographic Colorists' Guide. Now ready. By mail, \$1.50.

# THE WONDERFUL EURYSCOPE.

PHILADELPHIA, Sept. 3d, 1878.

Messrs. Benj. French & Co.:

GENTS .- The Euryscope Lenses sent us for trial we consider to be a whole team in themselves; in fact we think it would be possible to run a gallery with only the Euryscope to work with, and do outside as well as in-door work, with the very best results. For our particular branch of business, we consider them the greatest lenses we have got hold of so far. For quick working and light, we consider them Ne plus ultra; in fact we cannot say enough. We are satisfied that a trial will insure their sale wherever they are introduced. Very truly yours,

R. NEWELL & SON.

See Seavey's Advertisements, page 332 of October number, and page 364 of November number, of this Journal.

### RICHARDSON'S SENSITIZED PAPER

is economical, because it saves time, trouble, and money, and its printing qualities are unsurpassed. See advertisement in Photographer for July and August, 1876, Mosaics for 1878, or send for cir-C. F. RICHARDSON, Wakefield, Mass. cular to

HALL'S Transparent Crystal, Granite and Negative VARNISHES. Sold by all Dealers.

# CHEAP! CHEAP!! . A SUPERB MICROSCOPE

and Outfit For Sale!

ONE ZENTMAYER'S ELEGANT "GRAND AMERICAN BINOCULAR," fitted with objectives 1-10th to 2 inches, all of Zentmayer's accessories; case of mounting material and instruments; two cabinets of assorted foreign and American objects; Moller's Diatom Test-plate, etc., embracing a perfect outfit for a student or professional microscopist. Cost over \$800. Address

W. J. LAND, P. O. Box 305, Atlanta, Ga.

See Seavey's Advertisements, page 332 of October number, and page 364 of November number, of this Journal.

A. LAMOR,

EDW. LAMOR,

ARTISTS.
Photographs finished in Water Colors, Crayon,

or India Ink, in the highest style of the art.
PORTRAITS IN OIL A SPECIALTY.

Negatives finely retouched.
738 Sansom Street, Philadelphia, Pa.

# Gihon's

Photographic Colorists' Guide. Now ready. By mail, \$1.50.

### **EMULSION PHOTOGRAPHIQUE FRANCAISE**

Albert Levy, 77 University Place, Sole Proprietor.

New York, June 14th, 1878.

Having been trying for the past two or three years to find Dry Plates which were sensitive and reliable, I am well pleased to be able at the present time to get any of my amateur photographic friends out of the fog, and show them the means of obtaining Dry Plates which work well and reliable in all places and weather, and require no art or eleverness to produce good, clear negatives, vigorous and brilliant prints.

I purchased of Mr. Albert Levy one dozen of his Dry Plates on trial, and the result so far exceeded my expectations that I really began to think that I was a photographer, forgetting it was the plates and not the man. I have long ago discontinued using bath plates, and all other plates or emulsion except his, and have invariably found them to work the same.

Yours, etc., H. W. WICKHAM, 384 and 386 Broadway, N. Y.

GREAT chance to make money. If you can't get gold you can get greenbacks. We need a person in every town to take subscriptions for the largest, cheapest and best illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over \$150 in a week. A lady agent reports taking over 400 subscribers in ten days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address "The People's Journal,"

Portland, Maine.

# Waymouth's Vignette Papers.

ZENTMAYER STEREOSCOPIC LENSES FOR SALE. —A pair of  $2\frac{1}{2}$  inch focus, good as new, will be sold for \$25. Address

Z2½, care Philadelphia Photographer, 116 N. Seventh St., Philadelphia.

See Seavey's Advertisements, page 332 of October number, and page 364 of November number, of this Journal.

### SITUATIONS WANTED.

No charge for advertisements under this head; limited to four lines. Inserted once only, unless by request.

As assistant in a good gallery; can print, tone, and retouch, and have operated some; but want to learn the whole business thoroughly. Refer to present employer. Address J. W. Hurd, Folsom's gallery, Danbury, Conn.

In a first-class gallery; am thoroughly acquainted with every department; can speak derman and English. Address H. Hoffman, Shenandoah, Pa.

The undersigned will be open for an engagement by April 1st, 1879; references furnished. Parties desiring to rent, please correspond. A. M. Hammers, Gilpin, Indiana Co., Pa.

By a French artist in water color, india-ink, and crayon; can assist in printing, operating, etc.; understands thoroughly the Lambert process, and can make a first-class tissue, and all other requisites. Address Albert Grignard, No. 6 Charbonneau St., Montreal, Canada.

HALL'S Transparent Crystal, Granite and Negative VARNISHES. Sold by all Dealers.

As printer or retoucher, in a first-class gallery, having ten years' experience. Address Charles E. Vern, Auburn, N. Y.

By a young lady with two years' practice as a retoucher, and also used to mount and spot pictures, a situation in some photograph establishment. Reliable reference given, if required. Address J. D. M., Hartford, Conn.

By a young lady, who thoroughly understands retouching, printing, toning, and finishing, but who has been out of practice two years. Will work for six dollars per week. Address Miss R. W. Armstrong, Hygienic Institute, care Dr. A. B. Smith, Geneva, N. Y.

By a first-class printer and toner (late with C. D. Mosher, of Chicago); would like a situation either as printer and toner, or dark-room assistant, or both; good references, and will work reasonable. Address William L. Clarke, 2 Dallas Place, Boston, Mass.

By an artist, competent to take charge of gallery; over eighteen years' experience in photography or artist work. Address E. G. Maire, No. 27 Whiteboro St., Utica, N. Y.

By a young man; good retoucher, printer, and toner; understands something of operating; desires a situation in some first-class gallery, where he will have a chance to get a thorough knowledge of the business; wages no object: best of references. Address W. V. P., Box 815, Lincoln, III.

By a photographer with seven years' experience; understands out-door work well; prefers dark-room work; uses neither tobacco nor liquor. Address M. D. Robinson, North Hammond, St. Law. Co., N. Y.

As retoucher or printer in a gallery, by a young man who has also had considerable experience in crayon work. Address "Printer," Box 1395, Lockport, N. Y.

By a young man of eight years' experience, a situation in a good gallery, as operator, retoucher, or printer and toner; satisfactory reference and samples of work furnished; salary no object. A. M. Turner, 172 Main St., upstairs, Norfolk, Va.

By a young lady, to retouch negatives and attend the reception-room in some first-class gallery. Would not object going West. Address Lock Box 25, Marlboro, Mass.

By a young man 24 years old; can operate, retouch, or print. Good habits, and able and willing to work. Address W. E. Warren, West Bloomfield, N. Y.

By a first-class printer and retoucher. Has had ample experience. Samples of work sent to any one meaning business. Good reference. Address W. R. Humphrey, P.O. Box 210, Jacksonville, Ill.

By a young man, as printer and toner, or assistant operator. Address Printer, care of C. H. Robinson, Cedar Rapids, Iowa.



# Electrotypes of this Pleasing Little Picture

Which may be used to good advantage for advertising your business; especially adapted to photographers photographing children, &c. Price, by mail, 50 cents.

G. C. LOEWENTHAL & CO.,

Engravers on Wood, 722 Sansom St., Philada., Pa. P.S.—Engraved signatures, or autographs, \$1.00.

# VERY IMPORTANT!

WE HAVE PURCHASED THE ORIGINAL AND ONLY PATENT FOR

# RETOUCHING NEGATIVES BY MACHINERY,

And are now making improvements in the original plan, that will greatly increase its efficiency and lessen the cost. We shall put it on the market as soon as possible, and expect to announce price and full particulars in the next issue of this journal.

# WAIT FOR THE MACHINE.

GATCHEL & HYATT.

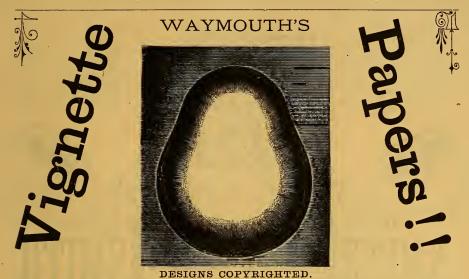
Cincinnati, Ohio; St. Louis, Mo.; and Louisville, Ky.

# GIHON'S PHOTOGRAPHIC COLORISTS' GUIDE.

BEST MANUAL ON COLORING PHOTOGRAPHS. \$1.50.

One-third of the proceeds of the sale of this book are devoted to the family of the deceased author. EVERY PHOTOGRAPHER SHOULD BUY A COPY.

EDWARD L. WILSON, Publisher, 116 North Seventh Street, Philadelphia.



OF ALL PICTURES THE VIGNETTE IS THE MOST ARTISTIC WHEN PROPERLY PRINTED; but the clumsy devices generally in use for printing them, or, rather, for blending the shading about the figure, produce but very few really artistic vignette pictures. Either the shading is too intensely dark, not gradated in tint at all, or it shows an ugly, direct, decided line, which is very repulsive. The shading should blend gradually from the dark tint nearest to the figure off into the white background. The results are then soft, artistic, and beautiful. The easiest and best way to secure them is by the use of

### WAYMOUTH'S VIGNETTE PAPERS.

They are not clumsy; do not break; are always ready; cost but little; and are easy of application to any negative.

They need but one adjustment to print any quantity.

They entirely do away with all the old and troublesome methods, either wood, metal, or cotton.

Eighteen sizes are now made, suiting all dimensions of pictures, from a small Carte figure to Whole-size, Victoria, Cabinets, etc. They are printed in black for ordinary negatives, yellow bronze for thin negatives, and red bronze for still weaker ones. Directions for use accompany each parcel.

### TESTIMONIALS:

"Waymouth's Improved Vignette Papers I have tried, and they are just what I have been wanting for years."—Well G. Singhi.

"From a trial made, we are enabled to say that they answer exceedingly well; and they are certain to find favor among photographers—a favor they well deserve."—British Journal of Photography.

"The Waymouth Vignetting Papers are a decided success. They are splendid."—
J. W. & J. S. Moulton, Salem, Mass.

"They readily admit of the gradation, already very good, being modified easily to suit the negative. This, I take it, is a point of great importance."—G. WHARTON SIMPSON, M.A., F. & A.

"I can testify to the exquisite softness obtained from your Vignette Papers, which gradual and soft effect I have never seen equalled by any other method."—H. A. H. DANIEL, Esq., Hon. Secretary of the Bristol and Clifton Amateur Photographic Association.

Also, see Hearn's Practical Printer, second edition.

### PRICES:

Inp	arcels containorted sizes an	ning one	of each	size, N	os. 1 to	15, asso	rted col	ors			•••••	\$1 1	00
Nos	. 1. 2. 3. 4. an	d 5. assor	rted size	s and c	olors.	for Cart	es		Bv	No	per doz		50 75
» »	6, 7, 11, 12, 8 8, 9, 10, 14, 16, 17, 18,	and 13,	)) )) )) ))		» »	Large C Cabinets	artes an s and W	d Victor hole-siz	rias .e	» »	»	1	ÓÕ
												1	25
N	Then ordering,	state the	number	and col	or you	want.		Ask y	our deale	r for	them.		

EDWARD L. WILSON, Manufacturer, 116 North 7th St., Philadelphia.



Professional Retouchers and others using the metal points in preference to the Plumbago or Graphite, found the SMITH pencil to possess the finest quality for their work. Superior merit over any other metal point manufactured, gave them a large sale, and although but a fraction of the size of other pencils, they were in demand at better prices. The supply suddenly gave out, and it was learned that Mr. Smith had died, carrying with him the secret of their manufacture. The demand was so persistent that we took the matter in hand, with the hope of replacing this luxury of the retoucher. Many attempts at analysis have been made, but they failed in getting the ingredients and proportions. Our analysis has been made by a competent Analytical Chemist, and the results have been THOROUGHLY TESTED by those who have used the original SMITH pencil, and pronounced PERFECT. We now offer this pencil to Photographers and Professional Retouchers, as the BEST IN THE WORLD.

# A Trial will convince you of its Merits.

The pencil is made 5 inches long, and will fit the Faber Graphite Holders.

Price, - - - - each, 25c.
" - - - per doz., \$2.50.

By mail, on receipt of price. Dealers supplied.
Address,

# CHAS. W. STEVENS,

PHOTOGRAPHERS' SUPPLIES.

CHAS. W. STEVENS. G. A. DOUGLASS.

229 & 231 STATE ST., CHICAGO.













Centennial, 1876.

# PORTRAIT AND VIEW

Portrait Lenses, from 1-4 to 8 x 10. Cabinet Lenses, Nos. 2 and 3. Card Lenses, Nos. 1, 2, and 3. Triplets, Nos. 1, 2, 3, 4, 5, 6, and 7. Symmetricals.

We have now in stock.

Instantaneous Doublets, all sizes. Medium Angle Doublets, all sizes. Large Angle Doublets, all sizes. Stereographic Lenses, all sizes. New Universal Lens.

Numerous testimonials pronounce them to be the best as well as the cheapest Foreign Lenses ever offered to the American Photographer. We will mail price-list on application, and promptly fill all orders.

# NEW APLANATIC

We now have a full stock of these Celebrated Lenses, at the following prices:

No. 1-1-4 size, .	3½ inch	focus	, .	Ĭ		\$25	00	No. 5-10-12 size, .		. 13½ inch focus	. \$70 00
2—1-2 " .	54 "	"				30	00	6-13-16 " .		. 164 " "	. 110 00
3-4-4 ".	7 "	"				45	00	7—18-22 " .	٠.	•	. 200 00
4-8-10 " .	104 "	"				60	00	8-20-24 " .			. 350 00
	Mos	1 and	9 0		in	mate	ahad	naire for etorogeani		mork	

We feel sure that at least one of these lenses is needful for the successful prosecution of your business, and so solicit your orders.

WE MANUFACTURE, IMPORT, AND DEAL IN ALL KINDS OF

# Photo. Goods, Frames, Stereoscopes and Views,

at prices as low as are consistent with the quality of goods furnished. We are indebted to our customers for their patronage during the past Thirteen Years, and our efforts shall be to merit a continuance of it. We have been appointed Trade Agents for

PARYS' AND LINDSAY'S COTTON,

CREMER'S FRENCH LUBRICATOR,

SOLAR AND CONTACT PRINTING,

COLORING IN ALL STYLES, FOR THE TRADE.

ILLUSTRATED PRICE LISTS FREE TO ALL APPLICANTS.

# ${f WILSON,\ HOOD\ \&\ CO.,}$

No. 825 ARCH STREET.

# PHILADELPHIA.

# HEARN'S PRACTICAL PRINTER.

SECOND EDITION

\$2.50.

NOW READY.

See Other Advertisement.

# The Photographer to his Patrons.

By EDWARD L. WILSON.

on the covers free of charge. The other pages of the cover belong to the one ordering and This cut, or a choice of several others, is used



neighbors to fill them and thus help you pay all or part of their cost. advertisements enough can be obtained of your

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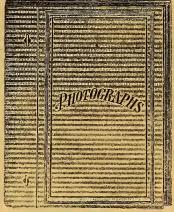
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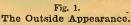
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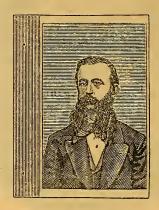


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#### IT SAVES TIME, SAVES PRINTS, AND SAVES MONEY.

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3 x 4 §

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$6\frac{1}{2} \times 8\frac{1}{2}$	$2\frac{5}{16} \times 3\frac{15}{16}$	$2\frac{7}{8} \times 4\frac{5}{8}$	$3\frac{7}{8} \times 6$
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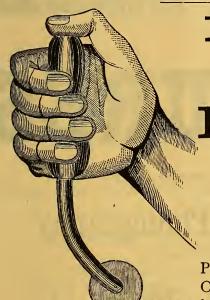
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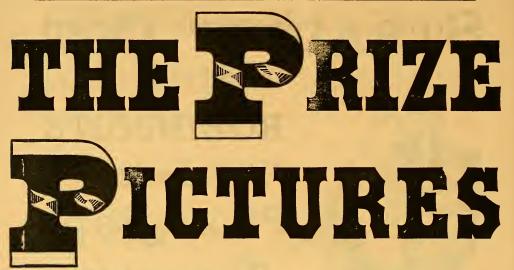
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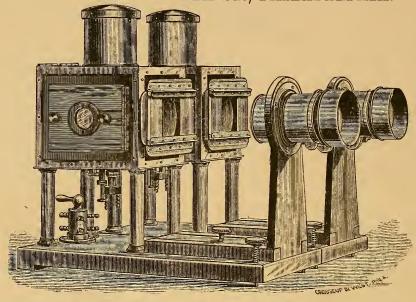
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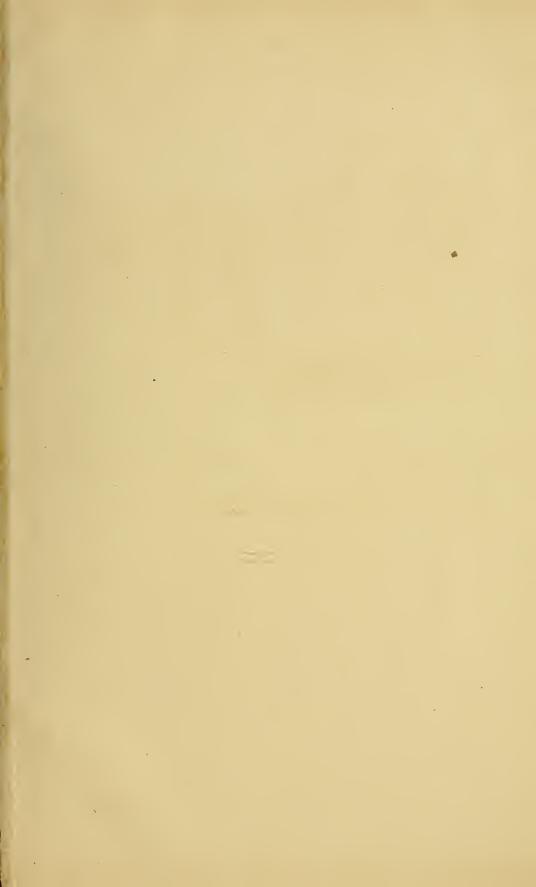
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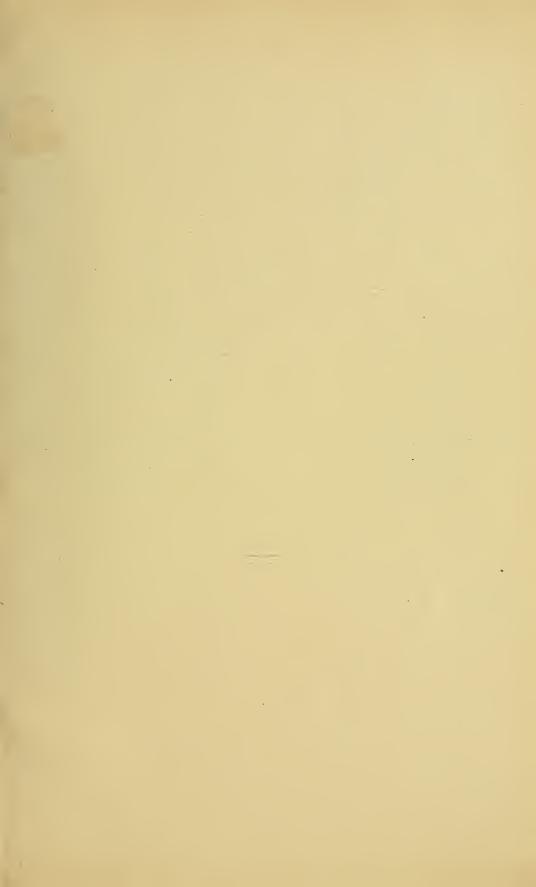
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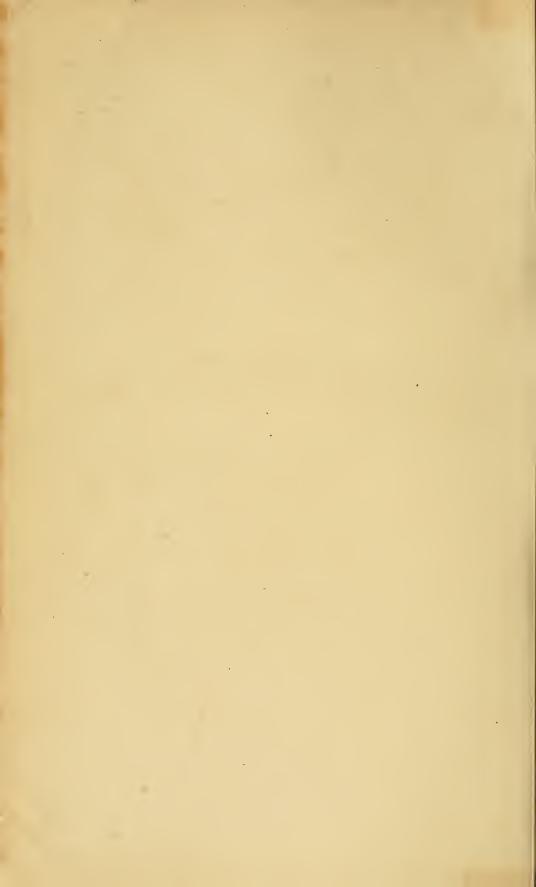
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