necessarily be limited in weight and bulk, and should ordinarily not exceed quarter-plate size, though with films a larger size may be taken for a short run or for any special purpose. A small, light, magazine hand camera of simple construction is the most suitable, and should be fitted with a first-class lens, so that the pictures may stand considerable enlargement. It should be strongly made, well put together, and packed in a strong light outer case or waterproof cover, so as to avoid injury in case of a fall and be protected from rain, dust, and heat. A light folding stand may be carried strapped to the frame, but can well be dispensed with if the bicycle itself is used as a stand, the camera being attached by a clamp screw to the handle bar.

As regards sensitive plates, celluloid films, either cut to size or in a roller slide, are undoubtedly the lightest and most convenient; but, if glass plates are preferred, the number that can be carried on the machine must depend upon the size of the apparatus. Some dozens of plates one and a half to two inches square could be carried without inconvenience, while more than a dozen or two of quarter-plates would be difficult to carry without inconvenience and a considerable addition to weight and bulk.

It is obviously not desirable to encumber one's self with extra plates and the requirements for developing or printing *en route*. These, if necessary, should be carried with one's luggage, to be forwarded by train, parcel post, or other local conveyance. If absolutely required, a few small graduated bottles of concentrated developer and fixing solution may be taken, together with a couple of celluloid trays distinctively marked, one for developing and the other for fixing. Developing and fixing cartridges or tabloids would also be found convenient. The bicycle lamp can readily be made to serve as a dark-room lamp by screening it with a piece of suitable non-actinic paper or cloth. Our author tells how to do this, and also how to improvise a bicycle lamp on occasion. He also goes fully into the details of developing, fixing, and printing negatives, but this we need not refer to further.

Our author also deals pretty fully with the question of clothing, and gives a lot of hints for drying one's things after getting wet and avoiding colds and chills. When taking an extended tour, a change of clothing should be carried on the machine. It should be limited to the necessary requirements, and the garments should, as far as possible, be of woollen material, to avoid chills. A spare pair of shoes or boots should be included. This clothing, together with toilet requisites and spare photographic kit, should be well packed in a waterproof valise or square of mackintosh for protection against wet and dust, and may be carried attached to the handle bar of the machine and above the camera. On the top is the waterproof cape, which should never be omitted. On an extended tour in out-of-the-way places, a few simple medicines may also be taken (for these tabloids will be most convenient, though not mentioned by our author); but it will also be desirable, in any case, to carry a small graduated bottle of alcoholic solution of corrosive sublimate, about 1 to 500. One part of this in ten of water, or better spirit, say whisky or brandy, forms a useful antiseptic application for cuts and wounds received in falling on dirty roads. The wound should be well washed with this, and then protected with sticking-plaster or cotton-wool—or a little vaseline may be rubbed on. A five per cent. solution of boracic acid in water is also recommended, and has not the poisonous properties of the mercurial salt. The author says that a solution of permanganate of potash diluted or Condy's Fluid may also be used.

The Machine.—Before starting on a tour the machine should be carefully and thoroughly inspected and all nuts tightened up—the gearing of the chain seen to and the bearings oiled. The tires should be inflated sufficiently but not too much in hot weather, otherwise the expansion of the contained air may cause strain or bursting.

At the end of the day's journey carefully clean the machine, if possible, doing it one's self. First wash off the mud with a soft sponge and water, taking care not to scratch the enamel. Dry with a soft leather. Then lay the bicycle down on its side, placing paper or cloth below to prevent injury from rubbing or dirt. Then wash out the bearings of the wheels with a little kerosine oil, turning the wheel all the while till the bearings are quite free from gravel and mud and the oil runs out quite clear. Keep turning the wheels till the petroleum is all out, and then wipe the machine and dry it with a soft leather. Do not let the oil get on to the tires or enamelled parts of the machine. The chain can be greased with vaseline. On starting again, a few drops of oil should be supplied to the bearings. The author also describes how to use a pneumatic tire, and gives a good many hints for the repair and preservation of the machine. The booklet also contains the rules current in France for the running of cycles on the public roads as well as for photographing, and tables of the multiplication and development of machines—according to the size of the wheels and gearing.

In THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC for 1895, M. Albert Levy gives his experience of a bicycle tour from Dieppe to Havre with a camera. His camera, specially made for films 7 × 5, weighed eight pounds, and he found the best place for it was between the legs, inside the frame, on an aluminium carrier weighing one pound. The tripod he carried across the handle bar, and the six holders in a box behind the seat; a little baggage-carrier in aluminium, to hold necessary changes of linen, shoes, &c., was placed in front of the bicycle. Altogether, his baggage weighed over twenty pounds. The first day he did thirty miles without any trouble, taking a few views; the second day was not so satisfactory, as he had rain; but the third day, running against a high wind, wet through even his waterproof, he managed with difficulty to get to Etretat, where he changed clothes and finished his journey to Havre in a carriage. He concludes by saying: "Photography while riding a bicycle is not always fun, and I understand parties having given it up as not practical. The bicycle is a very good and almost perfect machine for pleasure and exercise, but it is as yet in a very crude state if one wants it for any practical use, to carry some tools along, of any weight, say, from four to five pounds up, and that is small enough; but, as the machine is now constructed, put it where you may, it changes the balance altogether too much."

The subject is one of some interest, and, if any of our readers have practical experience of bicycle photography, we should be glad if they will communicate it for the benefit of their brethren. The important points are the amount of weight that can be carried without discomfort, and the best distribution of it. We are inclined to agree with Mr. Levy that the best position for luggage is inside the framing. The available space is not more than four inches wide, if so much, but a light case made of Willesden cardboard, or aluminium, three inches deep, made to fit the frame, would easily hold a small camera and the necessary clothes, &c. One of the new binocular or other so-called pocket cameras could easily be carried hung over the shoulders. Some of the home makers advertise camera carriers to be fixed on the handle bars.

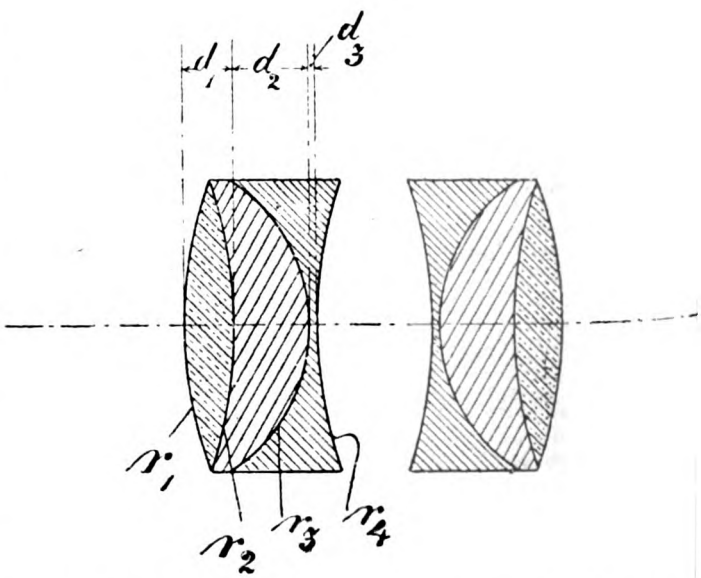
COLONEL J. WATERHOUSE.

VOIGTLÄNDER'S IMPROVEMENTS IN LENSES.

THE patentee, Herr Friedrich Ritter von Voigtländer remarks:—

Since the invention of the unsymmetrical anastigmato-photographic objectives with higher correction of the astigmatic error, it has been the desire of the opticians to construct symmetrical anastigmatical objectives of the same perfection. Such a symmetrical anastigmat, which has been called collinear, and for which letters patent were granted in 1894 under No. 21,458, consists of two equal systems of three bases cemented together in that way, that one positive meniscus of least refractive power lies between one biconvex lens of highest, and one biconcave lens of least refraction. This combination has met with a great success. But, however useful it might be, yet the highest illuminating power of this construction, *i.e.* the highest ratio of clear aperture and length of focus, could never be brought above 1 : 6·3, and so it has been the case with all the other constructions of symmetrical anastigmats.

Recent mathematical researches and practical investigations made it likely that only slight alterations of the optical properties of the medium lens in the so-called "collinear" would afford the possibility of attaining a higher illuminating power. Practical experiments and with the finest precision in the performance of the optical surfaces assisted the mathematical researches, so that I finally succeeded in designing and constructing a symmetrical anastigmatic collinear of the relative aperture 1 : 4·5, twice as luminous as the most luminous symmetrical anastigmat hitherto



known. Only a slight difference of the optical properties of the medium lens made this success possible, whereas any greater alterations lead to impossible curvatures and impossible forms of lenses. This new construction is therefore a most sensitive one, because it is not possible to

Generated through HathiTrust on 2026-03-22 09:58 GMT
https://hdl.handle.net/2027/coo.31924078845611 / Public Domain, Google-digitized
Digitized by Google
Original from CORNELL UNIVERSITY