

apparatus. G. Hare, 26, Calthorpe Street, Gray's Inn Road, London, W.C.—Photographic Apparatus. Sands and Hunter, 20, Cranbourn Street, London, W.C.—Photographic Apparatus. J. F. Shew and Co., 88, Newman Street, and 132, Wardour Street, London, W.—Photographic Shutter, and various other photographic specialities. J. Swift, 81, Tottenham Court Road, London, W.—Photographic Apparatus, Microscopes, and Microscopical Appliances. Leonard Atkinson, 285, Brockley Road, London, S.E.—Improved Apparatus for micro-photography. S. Lee Bapty, 65, Blackheath Road, Greenwich, London, S.E.—Photographic Enlarging Apparatus. T. Furnell, 1, Matlock Villas, Lordship Lane, East Dulwich, London, S.E.—An Adjustable Instantaneous Shutter for photographic purposes. G. Houghton and Son, 89, High Holtorn, London, W.C.—Modern Improvements in photographic apparatus. S. W. McKellen, 18, Brown Street, Manchester—Photographic Apparatus. London Stereoscopic and Photographic Co., 54, Cheapside, and 108 & 110, Regent Street, London, W.—(1) Various Photographic Apparatus for amateur use, showing the latest improvements; (2) Frames containing views taken by amateurs; (3) Specimens of Woodburytype, showing its application to commercial purposes; (4) Specimens of Carbon Photographs as an advertising medium; (5) Carbon Photographs on opal. W. W. Rouch and Co., 180, Strand, London, W.C.—Photographic Apparatus. Reynolds and Branson, 14, Commercial Street, Leeds.—The Phoenix Photographic Shutter. F. W. Monsell, Eglantine, Leeson Park, Dublin.—Circular Drop Shutter. William Ouin, 4, Laurel Cottages, Waverley Road, Parke Lane, Tottenham, Middlesex.—A Drop Shutter for taking instantaneous pictures of moving objects. Newton and Co., 3, Fleet Street, London, E.C.—(1) Patent Enlarging Lantern for photography; (2) Improved Photographic Ruby Lanterns. William Middlemiss, Holmfild Mill, Thornton Road, Bradford—Improvements in photographic apparatus. Photographic Artists' Co-operative Supply Association, Limited, 43, Charterhouse Square, London, E.C.—(1) "Poesa" Camera; (2) "Smith's" Camera; (3) "Charterhouse" and "Uranium" dry plate. W. G. Honey, 3, High Street, Devizes—An Improved Holder, and dark slides to be used therewith for sensitive plates. C. Green and L. V. Fridge, Ivy Cottage Stratford-on-Avon—Patent Actinometer. H. Garside, 21, Cannon Street, Manchester—An Improved Method of producing surfaces for mechanical or ink printing. W. Bernstein, 72, Finborough Road, South Kensington, London, S.W.—Photopeinture. Norman Macbeth, Victoria Foundry, Bolton—Process for producing printing surfaces on blocks by means of gelatine photo-reliefs. A. L. Henderson, 49, King William Street, London, E.C.—Ceramic Enamels. T. James, 32, Great George Street, Liverpool—Elastic Photo-Printing Blocks for typographic press. B. J. Sayce, Redcross Chambers, Liverpool—The Colloidal-Bromide Process.

As no two makers number their stops alike, and some do not number them at all, it is desirable to designate their stops in terms of the focal length of the lens. As an example of how misleading the information is obtained by giving the number of the stop, we would refer to the Dallmeyer lenses: Stop No. 3 in lens 1A is equal to  $\frac{f}{35}$ ; stop No. 3 in lens 3D is equal to  $\frac{f}{125}$ .

Here are the stops of the same number, in lenses by the same maker, and yet one requires eight times the exposure of the other. We are confident that the small amount of trouble caused by designating our stops in terms of  $f$  will be amply repaid by the aid it will give us in obtaining correct exposures.

THUMB-NAIL NOTES.  
(THE ROYAL ACADEMY.)

THE private view of the Royal Academy was strangely photographic. All the celebrities of the day, whose photographs stare at one from the shopwindows, were present, and the public must have blessed the camera which enabled them to find out Mr. Gladstone, Mr. Toole, Mrs. Langtry, Miss Anderson, and a host of others more or less known to fame, so easily. As for the pictures, criticism on that day was impossible. Still, one fact was very significant. While locomotion in all the rooms was difficult, the crowd before any one picture was not denser than the general throng. In other words, the Exhibition contains no paintings which stand out beyond the rest and compel attention—unless it be the works of Mr. J. R. Herbert, R.A., which for badness go beyond what even that veteran painter of mediocrities has hitherto produced. Mr. Herbert has contributed seven canvasses, all of which are of considerable size, and nearly all hung on the line. One feels, when standing before Mr. Herbert's works, the futility of criticism, and can only regret that so much valuable space is not better occupied, and wonder who it is that buys such feeble productions. With the pictures of Mr. Oules and Mr. Holl there is no mystery on this last point. Portrait painting is the only branch of art which at the present moment pays, and Mr. Oules and Mr. Holl do not work without a commission. But why should an unoffending public be compelled to gaze at the uninteresting faces of a Regius Professor of Greek, a bishop in his lawn, a very ordinary clergyman, and two doubtless estimable but obscure private gentlemen which Mr. Oules gives us? Mr. Holl is a little better, since he numbers Lord Dufferin, the late speaker of the House of Commons, and Mr. Wilson Barrett in his list; but then he overweights them with the portraits of a Cambridge tutor, a Philadelphia doctor, a bishop, a private gentleman, and a general scarcely known out of the Army list: eight portraits by one R.A. Surely this is stretching a privilege too far! On second thoughts, though, I do not object to the portrait of the general. It points a moral. Mr. Holl evidently had to deal with a very large and a very red nose. We may believe that he did his best with it; but, in the interests of truth, he couldn't do otherwise than paint the nose red. In such a case, photography has an advantage. Had the general been photographed, his nose would probably have appeared in shadow, but it would not have been red.

PHOTOGRAPHING WITHOUT FOCUSING.

THE conditions under which one can ensure a reasonable degree of sharpness (disc of confusion less than  $\frac{1}{160}$  th of an inch) have been worked out by a committee of the New York Amateur Society (Messrs. Dean, Janeway, and Metcalfe), and the following is their report.

To those who are using detective cameras, or taking "snap" shots, the following table will be of use, showing the number of feet beyond which everything is in focus when the equivalent focus of the lens and the relative diameter of the stop are known.

Equiv. Focus equals	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$	Stop. $\frac{1}{f}$
2 in.	7	3½	2½	2	1½	1¼	1	¾	¾
2½	10½	5½	3½	3	2½	2	1½	1¼	1
3	15	8	5	4	3½	3	2	1½	1¼
4	27	14	9	7	5½	5	3½	3	2½
5	46	21	14	11	9	7½	6	4½	4
6	60	30	20	15½	12½	10½	8	6½	5½
7	82	42	27	21	17	14	10½	9	7½
8	107	54	36	27	22	19	14	11	10
9	137	63	45	34	28	23	18	14	12
10	167	84	56	42	34	30	21	18	15
11	202	101	67	51	41	37	26	21	18
12	241	121	80	61	49	41	31	25	21
13	283	142	94	71	57	48	37	30	25
14	328	164	109	83	66	56	42	34	29
15	376	189	125	95	76	64	48	39	33

It is pleasant to turn from these uninteresting pictures to Mr. Herkomer's portrait of Miss Katherine Grant. This is worthy the notice of photographers because it suggests what can be done with a very light background. Since the late Adam Solomon started the fashion of dark backgrounds, forcible lighting, and deep shadows, photographers seem to have been afraid of attempting anything else. The background in Mr. Herkomer's picture is lighter than the face. The figure is placed close to the background, and a shadow on the latter thrown by the head gives a wonderful effect of force and brilliancy. Too many photographs admirable in the lighting of the head have a monotony about them from the even and shadowless back-